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TRENDS, ISSUES AND POSSIBILITIES
FOR URBAN DEVELOPMENT
IN SOUTHWESTERN AND CENTRAL ONTARIO



A SERIES OF STUDIES PREPARED FOR
THE ONTARIO ECONOMIC COUNCIL

SEPTEMBER, 1970

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W.H. Crockett,
Chairman

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Foreword

On March 4th, 1970, the Urban Affairs Committee of the Ontario Economic Council held a seminar to discuss the issues involved in the development of southwestern Ontario.

For the consideration of the seminar, three papers were prepared. They were:

"The Growth and Form of Urban Centres in Southwestern Ontario", by D. Michael Ray; "Economic and Other Implications of Development Policy", by Donald M. Paterson; and,

"Development Choices in Southwestern Ontario", by Leonard O. Gertler.

Mr. Ray's paper sets out his view of the problems of industrialization and urbanization in an historical perspective and demonstrates the forces at work in shaping this important part of Ontario. Mr. Paterson's paper raises questions about the range of development choices available. Mr. Gertler's paper presents an option for development.

They are being made available in this bound set so that a wider audience may consider their implications.

September, 1970

W.H. Cranston
Chairman

The Authors

Prof. D. Michael Ray is at the State University of New York at Buffalo. Previously he taught at the University of Waterloo and Carleton University.

Mr. Donald M. Paterson is President of Paterson Planning and Research Limited. He was the Commissioner in charge of the local government review in Muskoka and is presently engaged in the Oshawa review.

Prof. Leonard O. Gertler is the Director of the School of Urban and Regional Planning, University of Waterloo.

SUMMARY

1

"The Growth and Form of Urban Centres in Southwestern Ontario"

In this paper Michael Ray presents a convincing argument that Southwestern Ontario, defined as the area bounded by Sarnia-Windsor to the west and Metropolitan Toronto to the east, has been in the past, and will continue to be in the future, the major focus of population and economic growth.

Looking at the area under review from three different points of view or "components of spatial form" - heartland-hinterland, urban hierarchy and urban corridor - Ray concludes that the Toronto-Southwestern Ontario region is the centre of a set of converging forces that lead inescapably to the further concentration of population, industry and economic development.

But he warns that these forces of growth present a danger to the physical environment. "The urban growth process cannot be revised or halted; but a better understanding of urban growth forces may give us more chance to modify the urban forms they create and more hope to improve the relationship between man and his physical environment".

2

"Economic and Other Implications of Development Policy."

In this paper, Donald Paterson attempts to ask pertinent questions rather than to give final answers. He

raises, at the outset, some nine major development policy issues and sets them out as questions that pose two competing alternatives. For example, he asks whether we "should aim at the maximum amount of development, or its balanced geographical distribution?"

Having posed the issues as questions, the author then goes on to discuss each question from a political, social and economic point of view. The purpose of the paper, as Mr. Paterson suggests, is to force the reader to examine not only the need for essential trade-offs between alternatives, but also to broaden the consideration of each issue to include the economic, social and political aspects. It is also important to keep in mind that each issue must be considered in relation to all other issues.

In short, Mr. Paterson provides us with a multi-dimensional set of problems which must be solved, not in isolation, but as part of a single problem. The answers given must, therefore, be internally consistent in terms of the social, economic and political considerations, and logically consistent with the answers given to all other issues. Needless to say the author does not attempt to provide final answers.

3

"Reflections on the Development Choices
of Southwestern Ontario."

In planning the seminar, the Urban Development Committee of the Ontario Economic Council decided that it

would assist their discussion if they had a "plan" for the development of the area under consideration. They realized that such a plan could not be precise in detail but rather impressionistic. At the same time they wanted an overview that was consistent with the trends and with the reality of the area. It was a very difficult assignment that they gave to Mr. Len Gertler.

Mr. Gertler has provided in his paper a conceptual framework for the future development of southwestern Ontario. The central core of the concept "is a second major east-west transportation facility, extending from Chicago across Michigan and Lake Huron, through Sarnia to Goderich, and then northwestward to Midland, and westward along the edge of the northern recreation hinterland land extending to Ottawa, Montreal and Quebec City."

The thrust of the paper cannot be summarized. It provides a starting point for further consideration and discussion. In terms of its conceptual breadth it is indeed a "grand design".

THE GROWTH AND FORM OF URBAN CENTERS
IN SOUTHWESTERN ONTARIO

1. On Growth and Form

D'Arcy Thompson, writing on growth and form, noted that the underlying relationships between them are the forces acting during growth which have been impressed upon form and which enable it to retain its conformation. "In short, the form of an object is a diagram of forces."¹ The ratios of the growth forces may be constant so that growth of the parts remains proportional; thus the ratio of urban and rural population growth tends to remain constant over long periods.² The ratios of growth forces may change to create structural growth. Structural growth entails development, evolution and higher organization of form without which, "form limits growth."³ Structural changes during urban growth may promote growth so that a circular and cumulative causation process appears to operate, with past growth locked-in by a ratchet-

ACKNOWLEDGEMENT: The research on which this report is based was made possible by a grant from the Canada Department of Energy, Mines and Resources.

1. D'Arcy Wentworth Thompson, On Growth and Form (Cambridge: University Press, 1919), p.16.

2. Ibid., pp. 78-285 and pp. 1026-1092; and Robert Rosen, Optimality Principles in Biology (London: Butterworths, 1967) pp. 71-104. Examples of proportional growth are discussed in Raoul S. Naroll and Ludwig von Bertalanffy, "The Principle of Allometry in Biology and the Social Sciences" General Systems VI (1956), 76-89.

3. K.E. Boulding, "Toward a General Theory of Growth," Canadian Journal of Economics and Political Science Vol. 19 (1953), 326-340.

like safeguard.⁴ Hence, there is an increasing concern with the forces underlying urban expansion, and the problems created by them.⁵ It is the purpose of this paper to describe the form of the southwestern Ontario urban system, which extends from Oshawa on the east, to Sarnia and Windsor on the west, recognizing that the form of this system is a diagram of the forces that have been impressed upon it from its inception and which enable it to retain its conformation.

Factorial ecologies of spatial form and growth, undertaken by geographers and other social scientists, reveal three general components of spatial form, each related to particular sets of forces.⁶ These components are termed at the national level, heartland-hinterland, urban hierarchy, and development axis or urban corridor. The southwestern Ontario urban system is discussed in terms of each of these components below.

4. Allan R. Pred, The Spatial Dynamics of U.S. Urban-Industrial Growth, 1800-1919. (Cambridge: The M.I.T. Press, 1966), pp. 12-85; Wilbur R. Thompson, A Preface to Urban Economics, (Baltimore: Johns Hopkins Press, 1965) pp. 21-24 and Wilbur R. Thompson, "Internal and External Factors in the Development of Urban Economies," in Harvey S. Perloff and Lowden Wingo, Jr. (eds.) Issues in Urban Economics (Baltimore: Johns Hopkins Press, 1968), pp. 52-53.

5. N.H. Lithwick and Gilles Paquet (eds.), Urban Studies: A Canadian Perspective (Toronto: Methuen), 1968; Brian J.L. Berry and Jack Meltzer (eds.), Goals for Urban America (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1967).

6. Factorial ecology is the rubric for studies employing factor analysis and other multivariate procedures to examine the interrelationships among, and the spatial pattern of, social economic and political characteristics. See Philip Rees, "Factorial Ecology: An Extended Definition, Survey and Critique of the Field" in Brian J.L. Berry (eds.), Classification of Cities: New Methods and Evolving Uses (Washington: The International City Managers' Association, forthcoming) and D. Michael Ray, "A Factorial Ecology of Canada," Papers and Proceedings of the Regional Science Association, XXIII (1970), 7-23.

2. The Heartland-Hinterland Development Pattern

(a) The Heartland: The heartland is clearly identified by market potential which measures aggregate accessibility to the national market.⁷ The heartland is defined by a plateau of high market potential extending from Windsor eastward to Quebec City and it corresponds with the manufacturing belt. The highest market potential value for the census years for which retail sales data are available, 1931 to 1961, is Toronto and in 1961 one-third of all Canadian retail sales were made within one hundred miles of Toronto. Montreal's market potential is only a little lower than Toronto's and its population potential, or aggregate accessibility to the nation's population, is a little higher than Toronto's.

The twentieth century rivalry between Montreal and Toronto contravenes both Jefferson's law of the primate city and Zipf's rank-size rule.⁸ In 1834, when Toronto was incorporated as the first city in Upper Canada, it was less than

7. Chauncy D. Harris, "The Market as a Factor in the Location of Industry in the United States," Annals of the Association of American Geographers, XLIV (Dec., 1954), 315-348; and D. Michael Ray, "Urban Growth and the Concept of Functional Region" in Lithwick and Paquet op. cit., pp. 57-58.

8. The rank-size rule relates a city's population to its rank among a system of cities and the population of the largest city in the system. The law is an example of proportional, or allometric growth. Donald P. Kerr, "Metropolitan Dominance in Canada," in John Warkentin (ed.), Canada A Geographical Interpretation (Toronto: Methuen & Co. Ltd., 1968), pp. 537-543. Davies and Bourne find the rank-size relationship holds valid statistically for Ontario and Quebec cities over 10,000 from 1941 to 1961, whether they are analysed separately or together. See J.B. Davies and L.S. Bourne, Behaviour of the Ontario-Quebec Urban System: City-Size Regularities (Toronto: Department of Geography, University of Toronto Research Report No. 2, 1968).

one quarter the size of Montreal. But Toronto's political function as capital made it the planned center of the province's road network and, in the second half of the 19th century, of the rail network, endowing it with a nodality which, unlike Montreal, had not been bestowed by nature.⁹ The building of the Ontario Northland Railway in the early 1900's was particularly important since it stimulated mining exploration in the Canadian Shield and helped to establish Toronto as a world center in mining finance. In addition, the strengthening of Toronto's banks, and the progressive development of manufacturing were marked during the 19th century by a reduction of Montreal's primacy. By the turn of the century Montreal's population was about 1.2 the size of Toronto's, a ratio which has held fairly constant.

The increasing provincial dominance of the Toronto metropolitan region is evident in Spelt's maps of urban population 1861, 1911, and 1961 and the manufacturing employment distribution maps of the Atlas of Ontario.¹⁰ Also evident on these maps is the growing disparity between southwestern and eastern Ontario. Whereas urban centers were equally distributed east and west of Toronto in 1861, a century later there are four Southern Ontario metropolitan areas west of Toronto compared with only one to the east. Furthermore, in each of the three urban size groups, 2,500-5,000, 5,000-10,000 and 10,000-30,000, there are at least twice as many centers west of Toronto as east of it.

9. Jacob Spelt, "Southern Ontario," in Warkentin, op. cit., pp. 348-365

10. Spelt, op. cit., pp. 386-388; and W.G. Dean (ed.) Atlas of Ontario (Toronto: University of Toronto, 1969), plate 31.

The emergence of Toronto as Canada's largest center in terms of market potential has thus been associated with the emergence of a distinct cluster of southwestern Ontario urban centers.¹¹

The failure of this cluster to visibly affect the mapped distribution of population potential and of market potential is due in part to the contribution of Montreal to the Eastern Ontario potentials. Moreover, if the population potentials for Canada are recomputed so as to include the United States population, the area of highest potential is sharply defined as extending around Toronto and southwestward to Sarnia and Windsor.¹² From the continental standpoint the Canadian heartland thus shrinks to Toronto and southwestern Ontario.

(b) The Heartland-Hinterland Pattern: The heartland-hinterland pattern comprises those characteristics which vary progressively and significantly with increasing distance from the heartland. Multivariate analysis of a wide range of socio-economic characteristics reveals that heartland-hinterland contrasts are a pervasive element in the geography of Canada.¹³ For example in 1961, county-average family-income levels declined with distance from Toronto;

11. Leslie J. King. "Cross Sectional Analysis of Canadian Urban Dimensions, 1951 and 1961." Canadian Geographer, X (1966), 205-224.

12. David H. Douglas, Illustration of Regional Disparities in North America by the Use of the Gravity Model, (Ottawa: M.A. Thesis, Department of Geography, Carleton University, 1969), p. 32.

13. D. Michael Ray, Dimensions of Canadian Regionalism (Ottawa: Canada Department of Energy, Mines and Resources, Geographical Paper No. 44, forthcoming).

so did market potential, per cent of male labor force employed as craftsmen and post-war immigration as a per cent of all foreign-born. Economic disparity, measured as the weighted difference between population potential and market potential, increased significantly with distance from Toronto.

In general, two groups of characteristics, have significant heartland-hinterland contrasts. First, there are characteristics which are primarily urban-rural contrasts in nature, such as education, occupation, income and housing characteristics. Second, there is a distinctively heartland-hinterland group of characteristics which identifies the relative emphasis on a lumbering-fishing economy at the periphery, and, associated with it, a higher male-to-female ratio of the labor force, higher unemployment rates and greater economic disparity.

(c) Heartland-Hinterland Process: The development of the Canadian heartland has not been elaborated specifically in the literature in terms of any general process though the staple export theory, which implies such heartland-hinterland contrasts, is a Canadian contribution to regional development theory.¹⁴ The staple export theory in essence relates economic development to regional endowment and market accessibility.¹⁵ Continued and self-sustaining growth depends

14. W.T. Easterbrook and M.H. Watkins (eds.) Approaches to Canadian Economic History (Toronto: McClelland and Stewart, Ltd., 1967).

15. The importance of market accessibility is illustrated in Innis's map of the expansion of the square timber trade in Eastern Canada. A.R.M. Lower, "The Trade in Square Timber" in Easterbrook and Watkins, op. cit., p. 39.

on circular and cumulative causation in which a region successively attains the threshold for the internal production of a wide range of goods and services and thus achieves the associated economies of scale. The hinterland region with the greatest initial advantages and achieving sustained growth may become a new economic center or heartland. Centripetal forces are then set in motion, and leadership in finance, education, research and planning are added to the initial advantages of this heartland.¹⁶ Secondary manufacturing and service activity gravitate towards the center, leaving hinterland areas reliant on primary industries which tend to play a diminishing role in national economies.

Centrifugal forces, which reduce heartland-hinterland contrasts, include: the spread effects of growing markets and improving technology at the center that can benefit localities in the hinterland; the protection afforded hinterland industry by distance from the heartland; and the increasing congestion of the heartland combined with special amenities which parts of the hinterland have to offer.

Heartland-hinterland contrasts are thus a diagram of centripetal and centrifugal forces in which the centripetal forces are clearly dominant. The heartland-hinterland gradient in population potential has increased steadily in Canada during each intercensal period 1901 to 1961, irrespective of depression or war, as indicated in Table 1. Toronto and Southwestern Ontario can be expected to have an increasing proportion of Canada's population unless the balance of the center-periphery forces changes. It is more difficult to

16. Edward L. Ullman, "Regional Development and the Geography of Concentration," Papers and Proceedings of the Regional Science Association, IV (1958), 179-198.

assess the heartland-hinterland gradient in personal income. Analysis of personal income per capita for the five major Canadian regions over the period 1926-1965 shows stubborn regional disparities with Ontario's figures double those of the Atlantic Provinces Region.¹⁷ If the disparities are measured using retail sales at the county level, however, important regional disparities appear within Ontario with the Toronto-Hamilton and London areas having the most favourable disparity index and disparities increasing with distance from southwestern Ontario; furthermore regional disparities appear to have narrowed across the nation, 1931-1961.

Much more research is needed before the Canadian heartland and hinterland can be fully defined, and the strength of the center-periphery forces adequately assessed. The evidence available indicates that centripetal forces are powerful agents operating increasingly in favour of the continued concentration of urban growth in Toronto and southwestern Ontario. At the same time there is no evidence to suggest that an increasingly concentrated pattern of urban growth is leading to increasing regional disparities.

17. Economic Council of Canada, Towards Sustained and Balanced Economic Growth: Second Annual Review. (Ottawa & Queen's Printer, 1965).

TABLE 1
POPULATION POTENTIAL GRADIENTS FROM TORONTO

YEAR	GRADIENT	COEFFICIENT OF DETERMINATION (r^2)	TORONTO (YORK COUNTY) POPULATION	MONTREAL POPULATION
1901	.294	.563	269,022	371,086
1911	.286	.573	444,234	566,168
1921	.346	.553	647,665	738,210
1931	.362	.523	856,955	1,020,018
1941	.364	.531	951,549	1,138,431
1951	.405	.572	1,176,622	1,358,075
1961	.429	.579	1,733,108	1,872,437

Note: The gradient is measured by the regression coefficient "b" in the equation $Y = ax^b$

where Y is population potential
and X is distance from Toronto.

In all cases the gradient is negative since values decrease with distance.

3. The Urban Hierarchy

(a) Urban Hierarchy Forces. Heartlands and hinterlands are articulated into a national economy through the network of metropolitan centers.

Large economic establishments - such as corporations and financial institutions - have tended to congregate in the metropolis, where policies are shaped and from which decisions are diffused through successively smaller cities to all corners of the country. In reverse, funds, materials and people move from the hinterland to regional cities and on to the metropolis.¹⁸

At the regional scale, therefore, national economies may be interpreted as comprising a pattern of metropolitan centers and inter-metropolitan peripheries, with the socio-economic disparities between them similar to those found

between the national heartland and hinterland.¹⁹ The metropolitan centers, together with smaller urban centers comprise a system of cities arranged in a hierarchy according to the functions performed by each. Urban theory suggests that the functions, the urban field or area of urban influence, and the size of the cities are interrelated.²⁰ Growth and innovation filter down from the metropolitan centers to the smaller centers, and outwards from the cities across their urban fields.

While urban theory has been well developed and widely tested for central-place functions, the dominant function in most larger cities, particularly in the heartland is manufacturing (See Table 2).²¹ A hierarchy of

19. John Friedmann and John Miller, "The Urban Field" Journal of the American Institute of Planners, XXXI (November, 1965), 312-319; Brian J.L. Berry, Metropolitan Area Definition: A Re-Evaluation of Concept and Statistical Practice (Washington, D.C.: U.S. Bureau of the Census, Working Paper No. 28, 1968); and Pred, op. cit., pp. 12-85.

20. Brian J.L. Berry, Geography of Market Centers and Retail Distribution (Englewood Cliffs, N.J.: Prentice-Hall, 1967), and Thompson, (1968), op. cit., pp. 43-62.

21. D. Michael Ray and Robert A. Murdie, "Comparison of Canadian and American Urban Dimensions," in Berry Classification of Cities, op. cit., King, op. cit., pp. 205-224, T. Bunting and A.M. Baker, Structural Characteristics of the Ontario-Quebec Urban System, Research Report No. 3, Component Study No. 3, Urban Development Study (Toronto: Center for Urban and Community Studies, Univ. of Toronto, 1968); James W. Maxwell, "The Functional Structure of Canadian Cities: A Classification of Cities," Geographical Bulletin, VII (1965), 79-104.

manufacturing activity and centers is needed to complement the central place hierarchy.

TABLE 2
FUNCTIONAL CLASSIFICATION OF CANADIAN CITIES

Region	Central Place	Transportation	Manufacturing	Other	Total
Hinterland	7	5	18	5	35
Heartland	1	-	43	1	45
Total	8	5	61	6	80

Source: J.W. Maxwell, "The Functional Structure of Canadian Cities: A Classification of Cities, "Geographical Bulletin VII (1965), 79-104.

Note: The study includes all Canadian cities with 10,000 population or higher in 1961.

(b) Urban Hierarchy and Functional Regions: The most thorough analysis of the Ontario urban hierarchy and functional regions in the central-place framework is the study by Hans Carol.²² The criteria for designation of urban regions are primarily professional and medical services, shopping and urban recreation. Carol recognizes three orders, the highest, comprising Toronto, four high order centers, Ottawa, Hamilton, London and Windsor, and fifteen middle order centers. Carol's study is an important contribution to understanding the centripetal organization of space, but such studies do not consider urban centrifugal forces and the urban field.²³

22. Hans Carol, "Development Regions in Southern Ontario Based on City-Centered Regions," Ontario Geographer, No. 4, (1969), 13-29.

23. Leonard O. Gertler, "A Concept for Delimiting Development Regions," Ontario Geographer, No. 4, (1969), 30-34.

Gertler has noted the functional change of metropolitan areas from being primarily centripetal labor markets to serving also as centrifugal leisure markets.²⁴ One measure of centrifugal leisure forces is provided by examining the city location of cottage owners.²⁵ A comparison of the regions of cottage ownership with Carol's function regions for highest and high order centers shows a competitive displacement of the central place regions which underlines the importance of sheer urban size and geographic position in delimiting urban regions for space-consuming activities.

Recognizing the importance of the size of urban population and the deficiencies of rigid areal definitions of urban areas, Bourne has redefined the urban areas of Ontario and Quebec using the concept of "urban growth complexes."²⁶ Urban growth complexes are defined so as to encompass urban areas of metropolitan stature, in terms of population size and diversity of infrastructure, within which location decisions are largely unaffected by regional consideration. Bourne's urban growth complexes are presented in Table 3, subdivided into southwestern Ontario (including Toronto), the remainder of Ontario, and Quebec.

Four levels in the hierarchy of urban growth complexes are recognized based on population. Bourne includes Hamilton in an extended Toronto urban growth complex called Lake Ontario, making it a little larger than Montreal, the only

24. Ibid., p. 32.

25. Ontario Atlas, op. cit., plate 82

26. L.S. Bourne and A.M. Baker, Urban Development, Ontario and Quebec: Outline and Overview (Toronto: Department of Geography, University of Toronto, (1968), p.12.

other metropolis in the highest category.²⁷ Ottawa-Hull and Quebec City form the second level, and Kitchener, London, Windsor and Niagara at a third level. Both Carol and Stone have distinguished between the hierarchical orders of London and Windsor, and neither have included in the same classes Kitchener or Niagara.²⁸ Bourne points out that his Niagara urban growth complex may be a little more difficult to justify because it lacks a core center.²⁹ Even if Niagara is omitted, the distinguishing characteristic of southwestern Ontario remains its concentration of quarter-million population centers.

27. Bourne's definition is much broader than the "Toronto Main Labor Market Area" and Toronto "Total Labor Market Area" which are being considered by the Dominion Bureau of Statistics for the 1971 census. See, "Census Metropolitan Areas: Revision of the Concept, Criteria and Delineations for the 1971 Census," (Mimeo, Ottawa: DBS, no date.)

28. Carol op. cit., p. 20. Leroy Stone classed London at a second level of the Canadian metropolitan hierarchy with Vancouver, Calgary and Winnipeg though he notes they are not all necessarily equal. Windsor falls in his third group with Saint John and Edmonton. See Leroy Stone, Urban Development in Canada (Ottawa: D.B.S., 1967) p. 196.

29. Bourne, op. cit., p. 14.

TABLE 3

URBAN GROWTH COMPLEXES IN ONTARIO AND QUEBEC

Toronto-Southwestern Ontario		Northern and Eastern Ontario		Quebec	
Center	Population	Center	Population	Center	Population
<u>1. National Metropolitan Centers</u>					
Toronto ¹	2,600			Montreal ⁶	2,900
Hamilton	500				
Lake Ontario	3,100				
<u>2. Centers over 500,000</u>		Ottawa-Hull	550	Quebec	450
<u>3. Centers over 240,000</u>					
Kitchener-Guelph ²	275				
London-St. Thomas	255				
Windsor ³	250				
Niagara	240				
<u>4. Centers over 50,000</u>		Sudbury	120	Saguenay ⁷	125
		Thunder Bay	100	Trois Rivières	100
		Kingston ⁴	85	Sherbrooke	90
		Sault Ste. Marie	80		
Sarnia	70	Peterborough-			
		Lindsay	70	Shawinigan	70
Brantford-Paris	70	Lake Simcoe ⁵	50		
		Cornwall	50		
		Belleville	50		

Source: L.S. Bourne and A.M. Baker, Urban Development, Ontario and Quebec: Outline and Overview (Toronto: Department of Geography, University of Toronto, 1968), p. 15.

Notes: Population figures are in 1000's for 1968.

1. Toronto CMA, Oshawa - Whitby, Brampton, Oakville, Aurora
2. Kitchener CMA, Guelph
3. St. Catharines, Thorold, Niagara Falls, Welland, Port Colborne
4. Kingston, Gananoque
5. Barrie, Orillia, Midland
6. Montreal, M, U.A., St. Jean, Beauharnois, Ste. Therèse
7. Chicoutimi - Jonquiere M.U.A., Bagotville, Port Alfred.

A distinctive characteristic of Canadian metropolitan centers is the proportion of their population that is foreign born. In 1961, 15.6 per cent of Canada's population was foreign-born compared with 5.4 per cent of the United States. The proportion of foreign-born, especially United Kingdom born, is highest for the Lake Ontario urban growth complex, and the proportion of post-World War II immigration to this area, and to southwestern Ontario generally is even higher. In general, immigration rates to Ontario metropolitan centers are related to their population size (see Table 4).

Metropolitan growth has also been bolstered by immigration so that the population growth of the intercensal period, 1951-1961, was greatest in Canadian metropolitan areas: or 44.8 per cent compared to 20.3 in non-metropolitan areas.³⁰ Of the larger urban growth complexes of Ontario and Quebec, Toronto, Kitchener and Hamilton have

30. Stone, loc. cit.

generally had the fastest growth rates for the intercensal periods, 1941 to 1966; London, Ottawa and Montreal have been lower; and Windsor, Sudbury and Quebec City have been lowest. Growth of centers beyond these major urban complexes has generally been even lower. Urban growth has thus tended to be related to both heartland-hinterland and urban hierarchical forces.

TABLE 4
THE PERCENTAGE OF FOREIGN-BORN POPULATION
IN ONTARIO METROPOLITAN AREAS: 1961

Metropolitan Area	Population Total	1961 Rank	Foreign Born as a % of Total Population	
			%	Rank
Toronto	1,824,481	1	33.3	1
Hamilton	395,189	2	28.0	2
Windsor	193,365	3	23.1	3
London	181,283	4	21.1	4
Kitchener	154,864	5	20.4	5
Sudbury	110,694	6	16.1	6

Source: Yoshiko Kasahara, "A Profile of Canada's Metropolitan Centers", "Queen's Quarterly", Vol.70 (1963), p. 311
The figure for Ottawa could not be calculated as the metropolitan area extends across the Ontario-Quebec boundary.

Note: Population rank and rank by per cent of population foreign-born are perfectly correlated.

4. The Inter-metropolitan Axis Pattern

(a) Interaction: Metropolitan centers are linked by axis along which the rate of commodity flows, interaction and development tend to be proportional to the size of centers and inversely proportional to their distance apart.³¹ A political or physical boundary between two metropolitan centers will tend

31. John Friedmann and William Alonso (eds.), Regional Development and Planning (Cambridge: MIT Press, 1964), p.3.

to reduce the level of interaction between them, although a spatial momentum factor, which is proportional in strength to the distance of the centers from the boundary, appears to operate.³² A metropolitan center located between two centers may reduce interaction between them by serving as an intervening opportunity, although this effect also may diminish as the distance between the two centers increases.

(b) Air Line Traffic: Very little data on inter-urban interaction exists, with the important exception of airline passenger traffic. The volume of passengers flying between pairs of Canadian cities is related to the size of the cities and their distance apart.³³ Toronto is the major domestic-passenger node in Canada and passenger flows between Toronto and other large Canadian cities, particularly Vancouver and Winnipeg, are greater than are predicted from their size and distance. The data also suggest that Toronto acts as an intervening opportunity between the western periphery and Montreal. For example, air passenger traffic between Vancouver and Montreal in 1964 numbered only 26,000 compared to 60,000 between Vancouver and Toronto.

The air routes on which Canadian carriers transported over a hundred thousand passengers in 1964 were, in order of

32. Gunnar Olsson, Distance and Human Interaction (Philadelphia: Regional Science Research Institute, 1965); J. Ross Mackay, "The Interaction Hypothesis and Boundaries in Canada," Canadian Geographer, No. 11 (1958), 1-8; D. Michael Ray, Market Potential and Economic Shadow (Chicago: Department of Geography, Univ. of Chicago, Research Paper No. 101, 1965) pp. 89-110; Roy I. Wolfe, "Economic Development," in Warkentin, op. cit., pp. 226-227.

33. Kerr, op. cit., p. 546

importance, Toronto-Montreal, Toronto-New York, Montreal-New York, and Toronto Ottawa. The complete data on passenger traffic reveals the importance of the Toronto-Montreal axis and its links with both the Canadian hinterland, particularly Vancouver and Winnipeg, and the United States heartland, particularly New York and Chicago.³⁴ It also provides an indication of the urban hierarchy and the way in which the metropolitan centers link the national heartland and hinterland.

(c) United States Subsidiaries: A similar pattern of United States-Canadian interaction emerges from an examination of the location of United States-controlled subsidiaries in Canada.³⁵ The number of subsidiaries in a Canadian city that is controlled by corporations within a United States metropolitan area is proportional to the number of manufacturing establishments in that metropolitan area, and inversely proportional to distance from that metropolitan area. New York controls 307 Canadian subsidiaries; whereas, Boston, much smaller but a little closer to Canada has 48. Chicago and Los Angeles each have about the same number of manufacturing establishments, yet Chicago controls 197 Canadian subsidiaries compared with the more distant Los Angeles which controls only 45.

Because of the contribution of United States subsidiaries to the manufacturing industry in Canada, there are two important corollaries to the interactance model: first, regional economic development and urban growth in Canada will tend to reflect the economic health of adjacent regions of the United States, and second, the Canadian regions

34. Wolfe, op. cit., pp. 214-215.

35. D. Michael Ray, "The Location of United States Subsidiaries in Canada," Economic Geography (forthcoming).

most likely to acquire a large number of United States subsidiaries are those such as southwestern Ontario that are closest to the American manufacturing belt.

Two additional elements in the location of United States subsidiaries occur. The stronger of these is the tendency of subsidiaries to locate in the geographic sector that links the parent company with Toronto, the point of highest market potential. Toronto provides the optimal market location for American subsidiaries and few subsidiaries locate beyond it. Industrial intercontactance between a Canadian city and a United States city is severely restricted wherever Toronto becomes an intervening opportunity eclipsing sectoral affinity.

Furthermore, the distance that a parent company penetrates into Canada to locate a branch plant is directly proportional to the distance of the parent company from Canada. The Detroit manufacturer, for instance, can evade the Canadian tariff barrier and the prejudice against foreign products by locating a branch plant across the Detroit River. The marginal benefits of locating closer to the center of the Canadian market may not compensate for losing the convenience of operating the subsidiary close to the parent company. Consequently, 34 of Detroit's 87 Canadian subsidiaries are located in Windsor where they comprise more than half the total of United States subsidiaries. Eight of Seattle's 11 Canadian subsidiaries are in Vancouver. Detroit controls only 20 subsidiaries in Toronto and Seattle, none. By contrast, Los Angeles has half of its subsidiaries in Toronto, but none in Windsor; in general, the proportion of an American SMSA's Canadian subsidiaries located in Toronto increases with increasing distance from the Canadian Border.

The rapid industrial and urban growth of southwestern Ontario, and the contrast it presents with the eastern Ontario may be explained to a large extent by the impact of the United States on Canadian development, and by the concentration of this impact along "development axes" linking Toronto, across southwestern Ontario, to the United States manufacturing belt.

Urban growth can be expected to concentrate along these development axes so that one geographer has called them "urban corridors" and describes them as the "main streets for the Ontario megalopolis of the Twenty-first Century."³⁶ The location of modern highways, notably the Queen Elizabeth Highway and the MacDonald-Cartier Motorway is both a response to the traffic generated along these corridors and an inducement to the location of new industry and accelerating urban development.

5. Conclusion

Urban form, at whichever geographic scale it is studied, is a diagram of the forces that have acted during urban growth and which enable form to retain its conformation. The components of urban form identified in this paper are heartland-hinterland, urban hierarchy and development axis or urban corridor. The patterns can be related to centripetal and centrifugal forces acting: on a national scale to tie a nation to its heartland; on a regional scale to tie urban hinterland to their urban centers; and finally between pairs of major urban centers. Evidence presented in this paper suggests that centripetal population forces are strengthening at the national level. They may be also strengthening at the regional level. It therefore, seems probable that Toronto and

36. C.F.J. Whebell, "Corridors: A Theory of Urban Systems," Annals of the Association of American Geographers, Vol. 59 (March, 1969), 1-26.

southwestern Ontario, located within the Canadian heartland and comprising the land links to the United States heartland, will gain an increasing share of the nation's population.

Attitudes to urban growth, and to the industrial revolution which has made such a fundamental contribution to urban growth, have long been mixed.³⁷ Lewis Mumford, for instance fears that the stage of the manageable city has been passed and that there is a serious danger of the metropolitan zenith decaying to the necropolis, or the city of the dead.³⁸ Ecologists too are warning of irreversible damage to the physical environment that is in part associated with increasing urbanization. The reality of these dangers is unquestionable. Kenneth Boulding, reflecting on the twentieth century from a much broader viewpoint argues that human society is passing through one of its great transitions, powered by an extravagant use of physical resources. Such use may constitute an "entropy" trap, catastrophically halting the transition, through the exhaustion, or pollution of our resources, before a more lasting man-land relationship can be established.³⁹

37. Philip A.M. Taylor (editor), The Industrial Revolution in Britain: Triumph or Disaster? (Lexington, Mass.: D.C. Heath and Co., 1958).

38. See Brian J.L. Berry's review of The Urban Prospect by Lewis Mumford in Economic Geography, Vol. 46 (January, 1970), 108-109.

39. Kenneth E. Boulding, The Meaning of the Twentieth Century (New York: Harper and Row, 1965), pp. 121-136.

The problem of improving the man-environment relationship must be met in the face of increasing urbanization. In 1966, three million people, one quarter of the Canadian total, lived in Montreal, Toronto and Vancouver. By 1980 the Economic Council of Canada projects that eight million, or one-third of the total, will live in these three cities.⁴⁰ The urban growth forces cannot be revised or halted; but a better understanding of urban growth forces may give us more chance to modify the urban forms they create and more hope to improve the relationship between man and his physical environment.

40. Economic Council of Canada. Fourth Annual Review: The Canadian Economy From the 1960's to the 1970's. (Ottawa: Queen's Printer, 1967), pp. 173-225.

ECONOMIC AND OTHER IMPLICATIONS OF DEVELOPMENT POLICY

Introduction

The paper by Mr. Ray describes the emerging development pattern in southern Ontario, while that by Mr. Gertler discusses the development options which are open to us. The purpose of this paper is to examine the economic and other implications of various development policies.

To accomplish this, nine of the most basic development policy issues will be considered, first as economic policy issues, then in terms of their social implications, and finally in political terms.

Since these are issues which will have to be resolved in determining an overall development policy, each presents a choice between two alternatives. To clarify the issues, each is presented as a more or less opposing pair, but it is recognized that the policy chosen may well be a compromise or trade-off between the two.

If the approach is valid, it will clarify the need to consider each issue in terms of its economic, its social, and its political implications, and also to weigh each issue against the others, in the complex process of formulating a rational, comprehensive development policy. It is hoped the discussion may shed some light on the decision-making process, and possibly suggest some areas for fruitful research.

In expressing each issue as an opposing pair of alternatives, it is recognized that reality is somewhat distorted, because the pairs are not completely opposing or exclusive; indeed to a considerable extent, they may be partially compatible. But in no case are they felt to be completely compatible, and some trade-off between them is always likely to be required.

The Development Policy Issues:

1. Should we seek the most efficient pattern of urban development, or that with the greatest amenity?
2. Should we aim at the maximum amount of development, or its balanced geographical distribution?
3. Should present or future benefits be our greatest concern?
4. Should we concentrate on new development and redevelopment, or on conserving and rehabilitating present development?
5. Should we aim at an optimum size for our urban areas and regions, or accept some that may be too large, and some too small?
6. Should our primary concern be the quantity or the quality of development, services and amenities?
7. Should we emphasize urban, rural, or both?
8. Should development be primarily by accretion to existing centres, or in the form of separate new towns and communities?
9. Should we attempt to develop balanced and self-contained, or specialized and inter-dependent centres?

It is clear that many of these issues are interrelated, and that some may tend to overlap to a degree with others. However each is considered unique enough to justify and require the separate treatment given here.

Consideration of the economic, social and political implications of each issue follows in turn.

1. Efficiency versus Amenity

Economic

In economic terms, this issue arises because the pattern of economic development most productive of goods and services may not be the pattern which creates the best living environment. For example the use of much of Toronto's waterfront for transportation, warehousing and industrial purposes, the use of the Don Valley as a railway and expressway route, and the expansion of Malton Airport to serve the new jets, all make sense in terms of economic efficiency; but each detracts to some extent from the amenities of the metropolis.

Social

The difference is between a social ethic geared to work and output, and one geared to the enjoyment of living. Interest in the Metropolitan Toronto waterfront plan is indicative of a shift in social emphasis to the latter to help supply more recreation facilities for increasing leisure.

Political

The relative political weight of business interests has probably declined as the number of young adults of voting age has greatly increased. Political programs to benefit the public at the expense of business may increase, for example, the recent stiffening of pollution controls on industry, or the recent amendment of the Ontario Landlord and Tenant Act, both of which have implications for development.

2. Maximum Growth versus Balanced Distribution

Economic

As an economic issue, this is usually seen as the choice

between maximum expansion of G.N.P., with highly unequal distribution of rewards as the incentive, and a lower rate of growth, with a much less unequal distribution of incomes. But it may also take the form of maximizing provincial growth by concentrating on the major metropolis which seems to have the greatest growth potential, or settling for somewhat lower total growth by diverting some of the metropolitan potential to other regions throughout the province. Such a diversion would produce a more balanced distribution of growth in the province, but at the cost of such controls, incentives and subsidies as may be required to bring it about.

Of course it has not been proven that such interference with market growth trends need reduce total growth, but some consider this likely.

The foremost example of this issue is to be found in the current debate over the expansion of Metropolitan Toronto. Proponents of Metro growth wish to see its expansion continue unabated, while the opponents wish to divert some growth to other regions. Unfortunately the debate has so far tended to confuse urban expansion and political expansion, assuming that without the latter, the former will be curtailed or prevented. This is not necessarily so of course, as shown by the growth of Mississauga to the west of Metro. Nevertheless, urban expansion is as real an issue as political expansion, and from the point of view of the provincial development pattern, it is the more basic issue.

Social

The social concern over this issue is in part related to the quality of life and the strength of social bonds in a giant metropolis as opposed to less intensive concentrations of people in other regions of the province. In part, the social concern is for a more equitable distri-

bution of the social and cultural opportunities of urban areas throughout the province.

Political

The traditional politics of right versus left lined up with the issue of maximum economic expansion versus redistribution of incomes, as evidenced in the current debate over the White Paper on Tax Reform. But the parties have not yet aligned themselves on the related issue of maximizing provincial growth by making the most of Toronto's growth potential, versus diverting growth elsewhere to create a more equal distribution of it throughout the province. The confrontation over Metro's political boundary suggests that this issue of urban expansion is also likely to prove politically controversial.

3. Present versus Future

Economic

In economic terms, this is the distinction between short-term and long-term investments and profits, between the quick return and the long-term yield, between the wasteful depletion of resources and their careful management, between today's security and tomorrow's risk, and between paying for future needs by today's savings or tomorrow's debt charges. It is also the market forecasting of future tastes and the development of future products as opposed to concentration on present production.

In relation to development, this is increasingly the issue of how to have urban growth without polluting the environment, of how to enjoy in the present the fruits of a highly industrialized economy, while protecting the environment to assure a future for that economy. It is also the issue of how to accommodate a doubling of our population over the next few decades.

Nearly every development decision has to weigh present benefits and costs against future ones, has to weigh what the present population desires against what will be best for the future population.

Some current examples are the need to preserve some urban breaks or greenbelts at a number of key spots in the Golden Horseshoe while there is yet time, the need to accompany high density apartment construction with more open space than we are getting, the question of how much weight to give to the views of farmers and speculators whose lands will come under future development and be occupied by thousands not yet here, and the question of how much weight to attach to a plebiscite signed by the present urban residents in an area which will have a much larger future population.

Social

Concern for the future of a society in times of war, disaster or threat, tends to take precedence over economic considerations. Defence has almost always been considered more important than opulence, and if the threat seems great enough social concern for the future may outweigh our pre-occupation with other more pressing problems of the present. For example, concern over pollution is already vying with inflation as a major issue of the 1970's.

Political

At any election, governments are chosen only by present, not future voters, so it is difficult for a government to move far in advance of public opinion in protecting the future at the expense of present taxpayers. On the other hand, public opinion frequently runs ahead of government policy in showing concern for certain future issues. If there is considerable social concern, there is likely to be

sufficient electoral support for political programs involving significant dollar costs to achieve hoped for benefits of a less tangible nature.

4. New Development and Redevelopment versus Conservation and Rehabilitation

Economic

The renewal-conservation issue has recently emerged in the field of federal housing policy, and in the activities of citizen groups in certain areas of Toronto which had been suggested for renewal. Opponents of the Spadina Expressway also emphasize the need to conserve the areas through which it would pass against the changes they fear it would bring.

In economic terms, the cost of replacing a dilapidated house may be measured against the cost of rehabilitating it, and a rational economical decision made on this comparison.

But there is another, broader sense in which this issue applies, and one which relates to the preceding issue of present versus future. This has to do with the relative emphasis which our planning and development programs should place on the areas of new construction, i.e. the urbanizing areas, as opposed to the areas of existing development. This is essentially the choice between working primarily to improve what we've got, and working primarily to make our future development the best possible. In the long run, there is some indication that the cost benefit ratio of the latter might be higher than for the former, while our spending programs may be generally slanted toward the former.

In part, the issue is whether to give old assets a new lease on life through costly improvements or to concentrate on building new assets of a better design, allowing the old ones in time to be vacated, and only then when their value has been deflated to renew them.

Social

The major social concerns over this issue centre on housing, both as an essential need, and as the part of the physical environment having the most direct effects on social life and organization. Where and in what kind of shelter the future population lives, will have a great bearing on our future society.

Political

There are two matters of political concern in relation to this issue, the first being that those who will occupy the new urban areas are not there when they are being planned, and so have only the indirect influence of consumers' choice on matters of housing and neighbourhood design which will influence their lives greatly. The second is the question of how best to arrange local government machinery so as to handle competently the very large amount of urban development which will be required over the next few decades, and at the same time remain responsive to local democratic needs. Continuation, or perhaps in some cases restoration of responsive local government machinery in areas of existing urban development will also be required.

5. Optimum Size

Economic

In economic terms, this is the question of determining the most efficient size or sizes for a unit of settlement, efficient being taken in terms of meeting human needs and wants at minimum cost.

Numerous studies have attempted to explore this issue, but none of them has clearly established an optimum size even

in terms of municipal finance alone. It is therefore perhaps not too hopeful that an optimum size range can be firmly established taking into account all economic considerations. Nevertheless, the concept that there is an optimum size range is very widely held, even though there is much disagreement on where the range lies. Thus there are grounds for believing that it may be possible through research to at least establish some idea of a maximum size and a minimum size for an urban centre or region, beyond which either problems and costs rise faster than benefits or benefits drop faster than costs.

Increasingly however the need will be to consider the optimum size range for a conurbation and a megalopolis as the emerging primary forms of human settlement, rather than just for the metropolises which comprise a conurbation or the city and suburbs which comprise a metropolis.

In Ontario, the key questions are how big should the Golden Horseshoe grow, and how big should the part of the Horseshoe known as the Toronto Metropolis grow? Related is the further question of what the minimum size should be for other regions in the province.

Social

The social implications of size may prove more important than the economic. At least in several of the very largest cities in the world, it is the emergence of numerous intractable social problems more than or at least in addition to financial problems, which suggest that the maximum limit of optimum size may have been passed. Similarly, at the small end of the scale, it may be the limited social and cultural opportunities as much as the limited economic and job opportunities which indicate that below a certain size a unit is clearly outside an optimum range.

Political

If a social consensus begins to emerge either that one area has grown too large, or another area is yet too small, political support for a program to direct future growth into a different pattern should emerge. But if we should through research develop sufficient foresight to be able to say in advance that an area's growth should be stopped before it passes an upper size limit, it is not certain that political support to brake the momentum and divert the growth elsewhere would be mustered in time. And unless it proves politically feasible to implement size limits, it will not help much even if we can find out where the limits should be.

One thing that does seem likely is that it will probably prove more politically acceptable to stimulate the growth of other centres than to attempt to directly limit the growth of a centre considered too large.

6. Quantity versus Quality

Economic

In goods and services, trade-offs between quality and quantity are continually being made, and there is some indication that rising average real incomes are leading to an increased desire for higher quality goods as well as increased quantities.

In terms of urban development, a similar desire for improved quality of urban design is also evident.

Along with this there may be a growing awareness that the biggest or the fastest growing urban centre is not always the best place to live.

The desire for improved quality of urban development has also been increasingly expressed by governments in their insistence that developers and builders meet high standards of

space and servicing. The result has significantly improved urban quality, but at the cost of a decrease in the quantity - particularly of housing - which would otherwise have been produced. For example, the insistence on fully serviced residential land, and on minimum lot and house sizes, has helped price the single or semi-detached house out of the reach of the majority who work in the major urban centres, increasingly leaving them with only the choice of an apartment (with significantly lower standards of both open space and floor space per unit). Some at least would argue that a more satisfactory trade-off between quality and quantity should have been sought in the field of housing.

But in the case of urban areas on the whole, the desire for improved environmental quality is strong; as long as we remember that setting standards higher than we can afford can only lead to shortage, the up-grading of urban environment within our means is a feasible goal.

Social

The social reflection of the issue of quantity and quality may emphasize the need for a higher standard of living based on fewer goods of higher quality, or it may go farther, and emphasize a high standard of life, based on greater education, contemplation, and appreciation, rather than a high standard of living based on material wealth.

Whichever form it takes, it is notable that the social and economic optimism of the early 60's based on the age of plenty promised by nuclear power, automation and the computer, has given way to an air of pessimism, both about the quality of the goods, services and environment produced by our society, and also about our ability to ever produce in sufficient quantity to completely overcome poverty.

Political

There has also been a growing emphasis in recent years on improvements in the quality of government services of all kinds, with resulting increases in taxation.

There has been as well a growing acceptance of the need for larger units of local government in order to provide/increasing array of municipal services with desirable economies of scale. But there is now a growing awareness that even with greater efficiency and a growing tax base, none of our governments can afford to provide services of the full quantity and quality which many desire.

7. Urban and Rural

Economic

The issue here is that the rural areas tend increasingly to come under the economic domination of urban centres, while what may be economically desirable for urban development or to meet the needs of urban people, may not be in the best long-term economic interest of the rural areas.

Examples are the threat of urban encroachment in the Niagara fruit belt, the impact of the sand and gravel industry in many rural areas, and the impact within a widening radius from the major urban centres of a growing number of ex-urbanites who work in the city but increasingly find it feasible and preferable to live in the country, the village or the small town. As an ever greater proportion of the urban jobs locate in the suburbs, more and more workers will be able to commute the forty or fifty miles made feasible by such a job location. But these are really urban people living in a rural area, and they tend to bring with them demands for urban type services. At the same time, agriculture is becoming more efficient, businesslike, and large-scale. The result is increasing economic, social and cultural ties between rural and urban which are breaking down the old rural-urban separation.

The issue is whether this growing urban influence can be controlled with wisdom so as to preserve the best of the rural heritage. Such an approach requires a relationship of inter-dependence rather than dominance.

Social

Besides a different way of life, rural people have traditionally had somewhat different scales of values and morals and have generally been more conservative in accepting change. Many of them still possess a kind of wisdom which is perhaps harder to find in the city. In any event, the respect for nature which many rural people still feel strongly will have to be re-learned by urban man if we are to avoid ecological disaster in the next few decades.

Political

The fundamental political issue here is whether to unite or separate rural and urban areas as new regional government units are formed. Undoubtedly, if they are combined, the problem of representation in such a region becomes difficult, and conflicting values and interests will often cause friction. But the increasing inter-dependence of urban and rural really makes this the only feasible solution. In addition, there is no way in which a purely rural region (excluding a cottage area) could be given sufficient population to justify and support the desirable range of regional services, without making it cover such a vast area as to preclude any meaningful access to its local government.

8. Should Urban Development Expand Existing Centres, or Form New Ones?

Economic

Economically, the pressures for growth to take place

by accretion to existing centres are very strong. If new growth is to be given a more structured form as new towns or new communities separated to some extent from other urban areas, this will require some very deliberate efforts, and will undoubtedly entail some costs, particularly where utilities and roads have to cross the intervening non-urban belts.

In essence, this is the issue of growth following present trends versus growth that is planned to be structured in separate and identifiable units.

If after weighing the additional costs and benefits of the more structured growth it is considered desirable, two further questions must still be resolved: the number of new centres which should be planned, whether few or many, large or small; and their locations, whether relatively near to or far from existing centres. The former question of course is really the issue of optimum size again, while the latter relates to several of the other issues which we have explored above.

Social

It is primarily a sense of social or community identity which it is hoped would be augmented in the more structured community. But we need to know more than we do about the actual effects of such carefully planned developments.

Political

If structured development of the type discussed above should be deemed desirable, it is clear that provincial intervention on a considerable scale would likely be required to bring it about.

Beyond that, the number, size and location of new units decided on could have profound implications perhaps for some of the regional government areas, and certainly for the boundaries between lower-tier municipalities within the regions where such new structured growth was planned.

9. Should Centres be Balanced and Self-Contained, or
Specialized and Inter-dependent?

Economic

There will be economic advantages in both balanced centres (less commuting) and specialized ones (the efficiency of specialization and division of labour). Once the extent of possible balance or specialization were known, economic analysis of the alternatives might indicate a preference. In part, the answer may depend on the scale of the unit in question; for it is of course the fact that the large metropolis combines both balance and specialization that gives it such strong economic attraction.

Social

The decision between these two alternatives may however be made more on social than economic grounds. Certainly, many planning decisions are currently based on the assumption that it is socially desirable that a community or a town contain a balanced cross-section of age groups, incomes and occupations.

Political

Since the market forces in any given area are more likely to favour at least some nominal degree of specialization (either of a dormitory nature, or in favour of a particular kind of economic activity) or a particular income level and age group, it is likely that in most cases a truly

balanced community would have to be fostered by government policy.

The same issue is of course also of concern for the new regional government areas, and the province has proposed that a balance of interests be one of the criteria considered when drawing regional government boundaries.

Of course the goal of a balance of diverse interests may tend to conflict with other goals, particularly with the goal of fostering community identity. Therefore, as with all the other alternatives which we have considered, even the goal of balance itself must be balanced against other considerations.

Conclusions

Four main conclusions are suggested.

The Need for Trade-Offs

It is clear from the above analysis that each of the nine basic issues identified will require a trade-off between its alternatives; that the desirable trade-off for each issue will likely differ depending on whether the economic, social, or political aspects are being considered; and that even when each issue has been separately resolved, it must then be weighed against all the others before a final policy determination can be made.

The Need for an Improved Analytical Framework

If development decisions are to be made more rationally than in the past, it seems clear that the great complexity of the problem urgently requires a far more comprehensive analytical framework than has been used to date.

For a number of reasons, it is thought that the analytical tools which have been developed in the field of economics, and in particular the techniques of cost-benefit analysis, may prove particularly fruitful in an attempt to develop the necessary analytical framework. If this assumption proves valid, the Economic Council of Ontario might make an invaluable contribution (not only to the rational determination of development policy, but also to the science of decision-making) by attempting to develop an improved analytical framework.

The Need for Economy

In any event, it is felt that the Economic Council has a particular responsibility to point out to all agencies dealing with development decisions the limits imposed by our financial resources, and the consequences which must result if those limits are ignored. No matter how noble or desirable, there are undoubtedly some development alternatives which we simply cannot afford.

The Need for Research

Even if an improved analytical framework were to be developed as suggested above, it is clear that many of the issues raised cannot be rationally resolved without some research. As it is one of the purposes of the seminar to suggest some lines that research might follow, no attempt will be made to do so here.

It is hoped, however, that the analysis presented in this paper may prove fruitful in suggesting some necessary research topics.

REFLECTIONS ON THE DEVELOPMENT CHOICES OF SOUTH-WESTERN
ONTARIO

I

This is one of the most foolhardy and most important adventures on which I have ever embarked. Demonstration of the first point needs no elaboration--playing god, particularly on a tight schedule, has its pitfalls. The second assertion has both a subjective and objective basis. As a resident of this great province, I belong to the generation not yet old enough to be venerable, which once enjoyed swimming in the clean water of Lake Ontario, which knew The Queen Elizabeth when it could still pass as a parkway, and Saltfleet before it became a nightmare, and which could visit California without reaching for a gas mask. As a student in the field of community planning, I have noted that the documentation of environmental trends in North America indicates overwhelmingly a record of deterioration. The lesson writ very large is that generally North American society has not been able to cope with the dual forces of population growth and urbanization. The recently published American report of the National Committee of Urban Growth Policy, pin-points a set of what it calls dangerous flaws in the urban pattern:

- (i) The American metropolis is monumentally ugly--
"the visual environment remains the nations great cultural blind spot".
- (ii) Urban growth has been decentralized in a functional sense, but not in a spiritual sense of recreating in the suburbs the intensity, diversity and cultural richness associated with the core city.

- (iii) The process of spontaneous urbanization by which the metropolis has been formed is both wasteful and destructive of natural resources--"land speculation has become a major industry".
- (iv) Residents of the metropolis do not share equally in its choices and opportunities.
- (v) The map of the metropolis is a crazy quilt of political jurisdictions--"problems are handled piecemeal, rather than in relation to each other".
- (vi) The cities are financially unable to cope with their problems and are on the brink of crisis.¹

It is not suggested that these observations apply in any literal way to the area which is the subject of this paper. The ground rules of this seminar suggest that we are dealing with the most urbanized part of Ontario (and Canada)--in Ray's terms, the Canadian heartland, which lies south and south-west of the Kawartha Lakes and the morainic hills that separate the plains of southern Ontario from the Canadian Shield. It is the familiar land mass lying between Lakes Ontario, Erie, and Huron, which from a rocket eye's view assumes a peninsular shape. The area encompasses the six economic regions--Central Ontario, Georgian Bay, Midwestern Ontario, Niagara, Lake Erie, St. Clair, and the western part of Lake Ontario. It is inhabited by over five million people and at a moderate growth rate may have well over eight million people by the end of the century.

Viewed from a broad continental point-of-view this area assumes the character of the northern frontier of an urbanized belt extending from Chicago to Boston, and from

¹
Canty, Donald A., Editor: The New City, National Committee on Urban Growth Policy, Praeger, N.Y., Washington, London, 1969.

Boston to Norfolk, Virginia. It is a frontier, however, not only geographically but also in the cultural sense of still providing an opportunity to deal effectively, in spite of a backlog of problems, with the development of our environment. This is partly the heritage of enlightened policies--and we have had some, and partly the consequence of our demographic position. Some measure of our opportunity is suggested by comparative population data of Ontario and the ten most populous states extending from Illinois to the Atlantic seaboard. While the rate of population increase in Ontario since the turn of the century (about 300%) has kept pace, there is a substantial difference in population density--the pressure of people on the land. The density per square mile in Ontario is about 17 for the Province as a whole and 137 for Southern Ontario, compared to a range for the ten states that extends from 108 for Indiana to 774 people per square mile in New Jersey, with a mean figure for the group of about 270.²

There is of course no cause for complacency in these comparisons. We have for sometime been cast in the role of an extension of the American urban system--most recently by Constantinos Doxiadis, on behalf of a great urbanizer Detroit Edison, who sees our study area as a kind of double hinge: linking Chicago to Montreal and Quebec City as part of the "Great Lakes Megalopolis"; and through the Niagara frontier

2

Encyclopaedia Britannica, Volume 16, William Benton Publisher, Toronto, 1964, pp. 797, 798 and other volumes for the States of Illinois, Indiana, Michigan, Ohio, Pennsylvania, New York, New Jersey, Massachusetts, Connecticut, and Rhode Island.

linking the midwest to the "eastern megalopolis" along the Atlantic coast.³ So to the geopolitician southwestern Ontario becomes a link in vast continental corridors along which the major forces of North American civilization, both good and bad, will flow. Ray has demonstrated the population predominance of southwestern Ontario and its role as a development axis between Toronto and the United States manufacturing belt.⁴

This is the context, as I see it, of this paper and this seminar. We have an opportunity to shape the urban-regional environments of Ontario in response to our needs and desired life styles; and we can do so with the environmental advantages and built-in hindsight of our "frontier" position. But the pace of our development, and our continental position, suggests that if we do not chose to do so as a deliberate and sustained public policy, that the opportunity will be fore-closed and our Province as a place to live may fall far short of our aspirations.

It is the purpose of this paper to begin, perhaps to begin again, to outline how we might build, brick by brick, a sound structure for the development of the most urbanized part of Ontario.

II

The inspirers of this seminar have suggested that I take as my point of departure the second report of the Metro-

³
Constantinos A. Doxiadis, The Emergence and Growth of an Urban Region, Volume I. The Detroit Edison Company, 1966. Part Two.

⁴
D. Michael Ray, "The Growth and Form of Urban Centres in Southwestern Ontario", Ontario Economic Council, March, 1970, pp. 7 and 17, 18.

politan Toronto and Region Transportation Study, the report called Choices for a Growing Region.⁵ The report dealt with urban development options to the year 2000 for a defined greater Toronto region, extending about one hundred miles along the Lake Ontario shoreline, and extending north to include Guelph and Barrie and Port Perry--an area corresponding roughly to the Central Ontario economic region. This difference in scale between MTARTS and the study area of this O.E.C. seminar suggests to me that MTARTS is relevant mainly as an approach or a philosophy and that it will not be fruitful to extend an intra-regional concept to what is essentially an inter-regional issue. I will not hesitate, however, to incorporate some of the results of MTARTS where they make sense in an inter-regional context.

Considering MTARTS as an approach to urban development three observations have to be made: (i) the first is that it is in the normative tradition of planning--long range goals were formulated which shape the form and structure of the development pattern; these and the criteria they suggest, became the basis for evaluating the pattern emerging from present trends; the emerging pattern was altered or corrected to bring it in line over a period of years with the composite goals concept; (ii) the second observation is that MTARTS was futurist in outlook in the style of the new group of social forecasters, led by Daniel Bell, who make conjectures about the future based on an interpretation of technological, economic

⁵
Choices for a Growing Region. Metropolitan Toronto and Region Transportation Study. Department of Municipal Affairs, Toronto, November, 1967.

and social trends and their interactions.⁶ In the case of MTARTS there was, not surprisingly, a special interest in future changes in transportation technology and its impact on the organization and relationship of urban activities in the region. Increased mobility and reduced time-distance--"the geographical shrinking of the regions" was seen as the overriding, inescapable and opportunity-giving fact.⁷ The third observation about the MTARTS approach is that it was guided by a concept of urbanism, which has its roots in Aristotlian humanism--people come together in cities for security but stay for the good life; its contemporary expression in Mumford's emphasis on the City as the matrix, through heightened opportunities for contact and interaction, for personal fulfillment and cultural achievement;⁸ and its operational theory in the concept of the urban field--the functional region formed by the collectivity of individual life spaces, which tend to expand with increasing transportation mobility.⁹ The report heralds the emergence of a "regional city" in which the strains of transportation might be overcome, permitting the city to perform its unique role--providing "an attractive and coherent environment for

⁶
O.D. Duncan, "Social Forecasting: The State of the Art", The Public Interest. Fall, 1969, pp. 105-109.

⁷
M.T.A.R.T.S., op. cit., pp. 34.

⁸
Lewis, Mumford, The Culture of Cities, Harcourt, Brace and Company, New York, 1938, pp. 480-482.

⁹
John Friedmann, and John Miller, "The Urban Field", Journal of the American Institute of Planners, XXXI, November 1965.

the development and advancement of its people", and "maximizing of opportunities for a wide range of employments and pleasures".¹⁰

The application of the MTARTS methodology to southwestern Ontario will be attempted in this paper only illustratively and inferentially. The question of goals, of social forecasting, and the guiding concepts of urbanism and regionalism require reinterpretation for the larger sub-provincial scene. Each of these will be regarded as inputs to a development structure for southwestern Ontario.

Considering the size, urban-regional structure, and location of our study area, the goals that we enunciate should have three main characteristics: They should be informed from the point-of-view of broad provincial, if not national interests; they should be concerned with the inter-regional pattern of development--what kind of development mosaic is formed by the regions when they are looked at as a network?; and they should be politically legitimized. Fortunately for us as citizens and seminarians, we have such a statement of broad goals in Design for Development, Phase I, introduced to the Legislature of Ontario in April, 1966; and added to, in a second phase, dealing with the reorganization of local government, in November, 1968.¹¹ For present purposes I will very briefly, recall the main features of the initial broad policy statement. It can be condensed into eight points. The first three are general and fundamental:

¹⁰
M.T.A.R.T.S., op.cit., pp. 2.

¹¹
Design for Development, Statement by the Honourable John Roberts, Prime Minister of Ontario. Legislature of Ontario. Toronto, April, 1966.

Design for Development, Phase Two, Statement by the Honourable John Roberts, Prime Minister of Ontario. Legislature of Ontario. Toronto, November, 1968.

(1) provincial responsibility, which will be complementary to the private sector, for guiding, encouraging and assisting the orderly and rational development of the Province; (2) provincial policies to achieve the fullest and most efficient use of the human and natural resources, and to expand social and economic opportunities in each region;¹² (3) regional and resource policies that strike a balance between development, and conservation of "the aesthetic qualities of the environment".¹³ The remaining five goals are instrumental; (4) to direct and coordinate the preparation and implementation of regional development plans for ten economic regions; (5) to gear the Provincial budget towards development goals-- "by distributing the thrust of Ontario's \$3 billion budget efficiently and selectively throughout the Province".¹⁴ (6) to coordinate the programs of provincial departments and agencies towards achieving the broad objectives of Provincial development policy; (7) the gradual establishment of common administrative and planning regions; and (8) the involvement of citizens and organizations and industries at the regional level in the regional development process. I suppose one could add as a ninth feature the whole rationale for regional government in Ontario, which is the subject of Phase Two--and which is somewhat beyond the scope of this paper.

Following through the MTARTS approach, the next step is to juxtapose goals and social change--what kind of

12

The Honourable C.S. MacNaughton, The Ontario Program for Regional Development. Department of Treasury and Economics, November 4, 1969, pp. 1.

13

Ibid, pp. 1.

14

The Honourable C.S. MacNaughton, The Key to Ontario's Potential. Address to the Midwestern Ontario Regional Development Council, November 26, 1969.

world are we confronted with? The relevance of this kind of forward thinking is suggested by the acceleration of the impact of technological change. The time interval between the first discovery of an innovation and the recognition of its commercial potential has decreased from 30 years in the period up to 1919, to 16 years in the inter-War period, to 9 years in the last 25 years.¹⁵ The time machine is speeding up and so must we. I am not going to presume to make an independent analysis of trends. Instead I wish to sketch out a social forecast model--the model of post-industrial society, that has been associated with the sociologists and social psychologists, Daniel Bell and Eric Trist, and to some degree, the economists Bertram Gross and John Galbraith; and I will do so, like all good utopians, by selecting those aspects of the model which seem to be particularly environment-sensitive. I use "environment" here and throughout the paper in an all-encompassing sense, including the natural environment of landscape and natural resources; the biological environment of the ecosystems of land, water and air; the communal environment, the system of communities and their functions, size, hierarchy, relationships and contacts; and the urban-regional environment, which includes those aspects of other environments which shape the form and structure of regional settlement.¹⁶ Viewed inter-regionally, locational and

15

Daniel Bell, "Notes on the Post-Industrial Society", The Public Interest, No. 6, Winter, 1967, pp. 25.

16

This concept of environment is set out in the following:

L.O. Gertler, (Director and editor), The Concept of a Regional Development Plan, Planning and Resources Institute, University of Waterloo, February, 1970. Volume I, Appendix I, and Volume II, pp. 42-44.

functional issues move into the forefront and, as Blumenfeld has pointed out, environmental and economic issues merge.¹⁷

The point of departure of the post-industrial model is to seek out "certain characteristics of the future in the texture of the present". The present is found to be dominated in all advanced industrial societies--and who can doubt after Ray's exposition that we are not in the main stream, by an irreversible process of turbulent change, characterized by increasing complexity, interdependence, accelerating but uneven rates of change and an enormous expansion of the total environmental field.¹⁸ This change is well advanced and is leading to a society with radically different structural features in its technology, power base, economy, occupational and educational structures, leisure and employment, family structure and environmental context. Scientific thought has moved from an empirical to a theoretical basis. This permits the "codification of knowledge into abstract systems" capable of application to a wide variety of complex circumstances.¹⁹ The computer and its information superstructure is the technological base of the new knowledge. The centrality of theoretical knowledge leads to the centrality of the professional-scientific establishment, which challenges the power of the financial-industrial establishment. The technostructure becomes an important new political "constituency" which begins to make an impact on socio-political goals in the

17

Hans Blumenfeld, "Regional Planning", Plan Canada, Journal of the Town Planning Institute of Canada, July, 1960, pp. 124-124.

18

Eric Trist, "Urban North America. The Challenge of the Next Thirty Years", paper to Annual Meeting and Conference of the Town Planning Institute of Canada. Minaki, Ontario, June, 1968, pp. 1-11.

19

Daniel Bell; op. cit., pp. 28.

direction of a high quality standard of living, in which environmental components are much to the forefront.²⁰ This constituency is assuming a broader and broader base, expressed in the ascendance of the service sector, of the learning force over the work force, and of leisure over labour. Educational and recreational resources are at a premium. The post-industrial society is characterized by high productivity, but to sustain a high level of production and consumption requires an increasingly complex infrastructure--expenditure on public goods such as transportation, is beginning to exceed the cost of private goods. The high degree of city-centered mobility expands the life space and the urban field; while the combination of information and energy technologies provides the communications base for large inter-organizational and inter-metropolitan clusters--widely dispersed units can be held together in a single system and location of economic activities or even functions within single enterprises enjoy a greater number of locational options. Rural environments are part of or interact with the urban field. The generally stepped up pace of society's metabolism places us on the brink of exceeding safe thresholds of pollution and natural resources consumption.

While most of the foregoing structural traits are very much part of the present scene, the theorist of the post-industrial society, sees a lag in the development of the cultural values, organizational philosophies and ecological strategies necessary to cope with increasing complexity, interdependence and uncertainty. For example, our ecological strategy must move from response to crisis to prevention of crisis, from specific measures such as applying pesticides, to comprehensive measures taking into account reverberations throughout the ecosystems, and from short range ameliorative planning to long range planning based on social goals. In fact the post-industrial society is described as a planning society. The complexity

of society, its rapid change, the scale of capital investment in large corporate organizations and the increasing importance of the public sector and our environmental vulnerability means that we cannot, or dare not, rely exclusively on "auto-regulative" processes. Planning becomes the means of achieving "a new type of social balance".²¹ With this perspective, the forward-looking comprehensive, integrating character of Design for Development makes it truly a post-industrial phenomenon.

The third element in the MTARTS approach, the enunciation of an overriding concept of the city, becomes in our study area of southwestern Ontario, the need to enunciate a concept of regionalism, philosophically speaking rather than as a network of defined boundaries. In a number of respects the notion of the "urban field", referred to above, serves very well as such a concept, within a provincial setting. It is based on the very contemporary phenomenon of the centrifugal thrust of urban life space. If the entire region is becoming, as has been suggested, the stage for a new highly mobile life style, then it is very likely that the urbanite will develop a wider community of interest, based on identification with the area that satisfies his diverse spatial and environmental needs. Friedmann and Miller go so far as to state that the urban field "will constitute the new ecological unit of America's post-industrial society".²²

There is, however, a contradiction in the urban field concept which cannot be escaped. There is a presumption that the forces of expansion will go on and on due to a succession of improved transportation facilities--reference is made to a time-space continuum, and that these forces will

²¹ Eric Trist, op. cit., pp. 6, 12-18.

²² Friedmann and Miller, op. cit.

constantly reshape, and change the size, form and content of the urban field. Can a regional development pattern be built on such shifting sands? This dilemma indicates the need to clarify the role of regionalism in provincial development. For the purpose of this statement, it is suggested that the relationship of the human community to its environment, taking environment in the broad sense defined earlier, is the nub of the regional issue--or in other words we are dealing with "the ecology of the human community". Since this is the case, the concept of regionalism must be one which makes it possible for the people of the area to struggle towards an approximation of homeostasis--a balance of conditions consisting of the unique location, climate, resources, landscape, population, traditions and culture of the region, as well as of the broad social forces of change characterized by the post-industrial model. From this viewpoint, then, transportation or other aspects of technology are not seen as independent variables, but as powerful instruments which can be manipulated to achieve society's consensual purposes. The regional concept aspired to may be called the "urban ecological field". In putting forward this point-of-view the author is aware of the proposition that the relevant environmental context for contemporary urban man is the entire globe--"the city is a massive communications switchboard--a localized node within international networks", but I remain unconvinced.²³

III

At this juncture, it will be useful to summarize and interpret and draw out the implications of the line of thought in this paper.

Southwestern Ontario is Canada's urban-industrial heartland, and part of a continental North American system.

That system is highly dynamic economically, but its urban environment functionally, aesthetically, politically and ecologically seems to be heading for a crisis.

The position of southwestern Ontario on the edge of the system, its vast resources hinterland, comparatively favourable man-environment position, and the impact of public policies-- still leaves us a substantial opportunity to influence its development pattern and environmental quality.

One methodology for undertaking this task is suggested by MTARTS--Choices for a Growing Region. That approach was normative and futurist and guided by a particular philosophy of urbanism.

At the larger scale of southwestern Ontario suitable inputs for each of these elements in the approach are, (i) the goals of Design for Development, (ii) the post-industrial model of society, and (iii) a regional concept called the "urban ecological field".

The application of all of the foregoing would lead to the following scenario:

The Province will establish the development and environmental parameters for Southwestern Ontario.

These parameters will include:

- (1) the identification of urban ecological fields.
- (2) targets at ten year intervals of employment and population for each field
- (3) province-wide resources and environmental policies, such as the conservation of the most productive agricultural lands, the Niagara Escarpment and the recreational corridors formed by the major valleys and shorelines, and strict pollution control;
- (4) provision of trunk transportation facilities required for long-distance travel, and

- (5) generally the selective distribution of Provincial activities, through the budgeting process in a way that will support the general development policy.

The time horizon for this kind of parametric planning will be long range--about 50 years.

Within this Provincial framework, regional governments and regional development councils will be articulated into a single planning system with responsibility, under legislation, to make the fundamental policies and decisions concerning how they wish to organize the activities and land uses in their areas--spatially and environmentally.

To assist the regions the Province will, (1) provide research facilities; (2) organize a Province-wide, regionally-oriented data system; (3) issue studies on such subjects as long range technological, demographic, social and economic trends, on criteria for selecting growth centres, and on techniques of "new city" planning, (4) undertake broad indicative planning which will bring to light certain possibilities inherent in the Provincial economy, such as the creation of new development corridors of the type proposed in MTARTS.

While much of the foregoing emerges from policies and programs that are already in effect or under consideration the statement has been kept general, to better focus on the conceptual aspects of the approach without raising issues related to responsibilities and jurisdiction, and because the time horizon, 50 years, is longer than normally prevails, operationally, and new needs and possibilities claim attention.

Within the indicated planning framework, the application of the development principles inherent in the post-industrial forces and in the concept of the urban ecological field can best be demonstrated graphically. But before proceeding to that it is necessary to identify a set of general influences on the location and form of urban growth, which have been indicated by the Athens Centre of Ekistics. These are in order of importance, (i) the attraction of existing urban centres, (ii) the pull of major transportation routes, (iii) the recreational and aesthetic appeal of lakes, rivers,

etc. and other places of scenic beauty, (iv) open plains for extensive uses such as manufacturing and large institutions, (v) the availability of substantial fresh water, and (vi) moderate climate.²⁴

These six factors are plotted on the urban influences map of southwestern Ontario. One clear and predominant observation emerges, and that is the south-southwestern bias of these influences. Five of the factors, recreation resources in the Shield, and Georgian Bay water exert some attraction to the north, but these operate in isolation from the two major urban growth influences: the belt of cities, and the main transportation line.

A simplified map of major transportation routes, combining road and rail, suggests the highly monolithic character of our trunk system. Essentially, the single east-west trunk must serve as an international route, the major inter-regional link in southern Ontario, collector of all local traffic from north and south, distributor of peak recreation traffic, urban by-pass, and in some cases, urban street.

It is not at all surprising that this concentration on the single transportation corridor leads to the development of a predominant urban corridor system--as Russwurm has recently documented. Analysing land use, functions and flows between Toronto and Stratford, he concludes that the combined effect of metropolitan dominance and the concentrating tendency of an urban corridor system will increasingly cause a blanketing dominance of Metro Toronto over all of southwestern Ontario,

and physical development will take the form of "a continuous conurbation".²⁵

The urban form of about 2030 is suggested by the trends map, illustrating the long range tendency of unguided urban development--or development guided exclusively by a local planning mechanism. The urban area is shown at a scale of development which is approximately 3% per annum, resulting in three-fold expansion of urban development in about sixty years. Generally urban growth would fill in the "golden horseshoe" from Oshawa to Niagara Falls and merge the "golden horseshoe" with the "golden triangle" of Kitchener-Waterloo-Guelph-Preston-Galt. This merging is likely to be given some impetus by the location of a new major airport northwest of Toronto. Brantford would be assimilated into the Hamilton orbit and the dismal history of Great Lakes shoreline sprawl would be repeated at the future nodes of steel production on Lake Erie at Nanticoke, where Stelco is scheduled to start production in 1973, and at Port Burwell where Dofasco will initiate a new cycle of growth in 1995. For the rest, London and Windsor will extend into their urban shadow areas and smaller secondary development corridors may emerge between Sarnia and Chatham and extend to Lake Erie, and from St. Catharines to Port Colbourne along the Welland Canal.

At this juncture in the development of urban studies we know enough about the comparative characteristics of urban agglomeration and urban dispersal to suggest that generally the advantages of the first are economic and of the second, environmental. In considering an alternative development

choice for southwestern Ontario, the challenge may be seen as one of finding a way of combining the advantages of both.

Returning to the scenario of long range planning policy, we would begin our effort to reconstruct the urban development pattern of southwestern Ontario by a policy decision to conserve limited and fundamental economic and landscape resources. The first is agricultural land.

The map of agricultural reserves is based on the agricultural regionalization map of the Ontario Economic Atlas, which grades agricultural land on a township base by the aggregation of 25 variables related to capital input, land use and production characteristics.²⁶

The analysis is a step beyond agricultural capability to something approximating Hill's concept of agricultural suitability--the economic viability of land taking into account production, market and cultural factors. The first two grades of a four-grade classification have been selected to give emphasis to the very limited areas of highest suitability. Since the analysis is based on present activity, the areas of most intense urbanization are built into the classification and bias the grading of the lands in question towards low values. By placing grade 1 and 2 lands in reserve, not all urban development would be excluded, but the onus will be placed on a private developer or a public agency to demonstrate the benefits of conversion to urban use. This would be a safeguard against such thoughtless and imprudent policies as the contemplated extension of St. Catharines several miles into the healthy agricultural economy of Louth township, on the basis of sewer economics alone.

The other major resource reserves are the recreation corridors formed by the Niagara Escarpment, the shoreline of the

Great Lakes, and the valleys of six major watersheds: The Thames, the Grand, the Sydenham, the Maitland, the Saugeen, and the group of small waterways draining southeastward from the Niagara Escarpment towards the Toronto region. The concept of linear recreation corridors has been worked out by Lewis in Wisconsin and the implementing program is in high gear.²⁷ In addition to forming a network of outdoor recreation resources in an era of rising leisure aspirations, such corridors would serve a number of additional worthwhile functions: preservation of landscape character, water drainage, aquifer recharge, air circulation, ecological migration, and as an element in urban design. Implementing this concept will require the systematic use of scenic, access and management easements, along the lines set out in the Niagara Escarpment Study.²⁸

In trying to bring together the strands of this paper into a concept of development for southwestern Ontario, projected quite far into the future, I am reminded of Voltaire's remark: "let a man give me one sentence, and I can hang him". What I will put forward is extremely general, tentative and visionary. At best it will serve as an illustration of a line of attack on the problem before us.

As I have already indicated a key feature of the concept will be the "urban ecological field". Since one of the underlying ideas of the field is that it incorporate a regional community of interest, a suitable starting point in

27

Philip H. Lewis Jr., "The Environmental Corridor", Scenic Easements in Action, Conference Proceedings, University of Wisconsin, 1966.

28

Leonard O. Gertler (coordinator): The Niagara Escarpment Study. Regional Development Branch, Department of Treasury and Economics, Toronto, 1969, pp. 7, 8, 15-18, 84-89.

the delineation of the field are the functional regions, defined by Carol on the basis of central place-tributary area contacts for shopping and services.²⁹ The regions shown on the map are for middle order tributary areas, and are a good approximation of the patterns of association between town and county that have grown up since the automobile became dominant.

The areas described as "urban ecological fields" on the Long-Range Development Concept South Western Ontario map do not conform to these functional regions. The best way to explain the difference and the basis for the fields is to describe the major structural features and then deal with some of the specific urban ecological fields to illustrate the elements from which they are built.

The major structural feature of the long range development pattern, is a second major east-west transportation facility, extending from Chicago across Michigan and Lake Huron, through Sarnia to Goderich, and then northward to Midland, and westward along the edge of the northern recreation hinterland, making contact with tourist centres of Gravenhurst and Bancroft and extending to Ottawa, Montreal and Quebec City. The rationale for this second transportation corridor is inherent in continental population and travel patterns and in the impact of the Toronto dominated urban corridor systems. Within the time-span of half a century, the multi-million population increases in the Great Lakes and Atlantic coast urban systems, will result in enormous pressures on the existing route, which can be relieved only at substantial environmental cost, due to widenings, congestion, pollution and so on. We see the process in epitome in the Q.E.W. part

of the corridor, where a questionable highway alignment, like original sin, continues to have a far-reaching environmental impact. This points to a second route, which at the suggested location would (i) relieve the pressure on the existing route and serve as a long distance and inter-regional route, (ii) act as a distributor of recreational-tourist traffic, and (iii) provide the basis for a second urban corridor system in south-western Ontario, through the urban corridor dynamics depicted by Russwurm. Places along the line like Sarnia, Goderich, Mount Forest, Midland would become the key growth centres of the new system.

The suggested facility would not be a mere repetition of existing modes, but on the frontier of the new transportation technology--such as air cushion vehicles for their ability to operate on water and on land. At the present stage of development, however, these have pollution problems, and it must be one of the performance criteria of the new facility that it be pollution-free. An alternative is suggested by the electric-powered magnetically suspended train using superconducting magnets and driven by synchronous linear motors up to speeds of 300 m.p.h.³⁰

Other structural features of the concept are:

recreation routes - linking major urban centres along the southern corridor to points along the northern corridor, and extending to Great Lakes shorelines.

development corridors - which include the Hamilton-Toronto-Oshawa System in the MTARTS Goals Plans I and II; or the Hamilton-Nanticoke corridor to integrate the regional steel economy; the St. Catharines-Port Colborne corridor developed as an alternative to urbanization in the fruit belt; the London-Port Burwell corridor which would give a metropolitan base to a heavy industry community, and the Midland-Orillia, and Port Hope-Peterborough Corridors.

Centres of various types - including the predominant centres called regional centres, such as London and Windsor, sub-centres of those, and co-centres--centres of virtually equal status such as Sarnia and Chatham, which would be at two poles of a development corridor between the two trunk transportation routes.

The study area would include the following eleven urban ecological fields, and constituent centres:

<u>Field</u>	<u>Centres</u>		
	<u>Regional</u>	<u>Sub</u>	<u>Co.</u>
Niagara	Niagara Falls - St. Catharines	Welland Port Colborne	
Grand-Hamilton	Hamilton- Burlington	Brantford Nanticoke	
London-Erie	London	St. Thomas Port Burwell	
Huron-Erie			Sarnia Chatham
Windsor-St. Clair	Windsor		
Midwestern	Kitchener- Waterloo-Guelph	Galt Preston Goderich	
Toronto-Central	Toronto	MTARTS sub- regional centres?	
Oshawa	Oshawa-Whitby	MTARTS sub- regional centres?	
South Georgian Bay			Midland Orillia Barrie Collingwood
Kawartha	Peterborough	Lindsay	
Bruce	Owen Sound		

All of the fields with the exception of Windsor - St. Clair, and Bruce are poly-centered, although in the case of Toronto-Central and Oshawa the sub-centres are incorporated into the lakeshore development corridor and are not separately identified.

The character of the urban ecological field can be illustrated by special features of selected fields. For example, the Midwestern field incorporates all of Carol's functional region focused on Kitchener-Waterloo; gives emphasis to creating a strong tri-city regional core as a means of

maintaining the integrity of the area as a distinctive region; incorporates and preserves a broad agricultural hinterland for economic reasons and to provide continuity for a pacifist sect that has contributed much to the flavour of the region. The field perpetuates the present link to Lake Huron of the Midwestern economic region because the position of the region, surrounded by the larger competing fields of Toronto-Central, Grand-Hamilton, and London-Erie makes it necessary to broaden the economic base of the region. The urban structural implications of this are indicated in a recent study of the Waterloo Planning and Resources Institute which indicates a triangular set of new development cities, at Stratford, Mount Forest and Goderich.³¹ Thus the dominating motif of the Midwestern field is to maintain its regional integrity, economically, culturally and environmentally. In other fields, different elements are important. For example in Niagara the area of the new regional government is accepted as the best framework in which to work out problems which were not tractable at the local level: achieving a balance between urban and agricultural activities, developing an alternative development corridor, preserving the unique landscape and recreational attributes that have been the basis of its magnetic tourist appeal and so on. The Bruce unites in a single field the entire area of high recreational appeal characterized by the Escarpment cliffs, scenic shorelines, wooded areas and unique ecology; and should facilitate the development of the area around that focus. Each field is formed on the basis of a unique mix of historical, environmental, structural and functional elements.

This cursory and hypothetical sketch of a development pattern is presented without economic validation. Its conceptual justification is found in the conditions of post-

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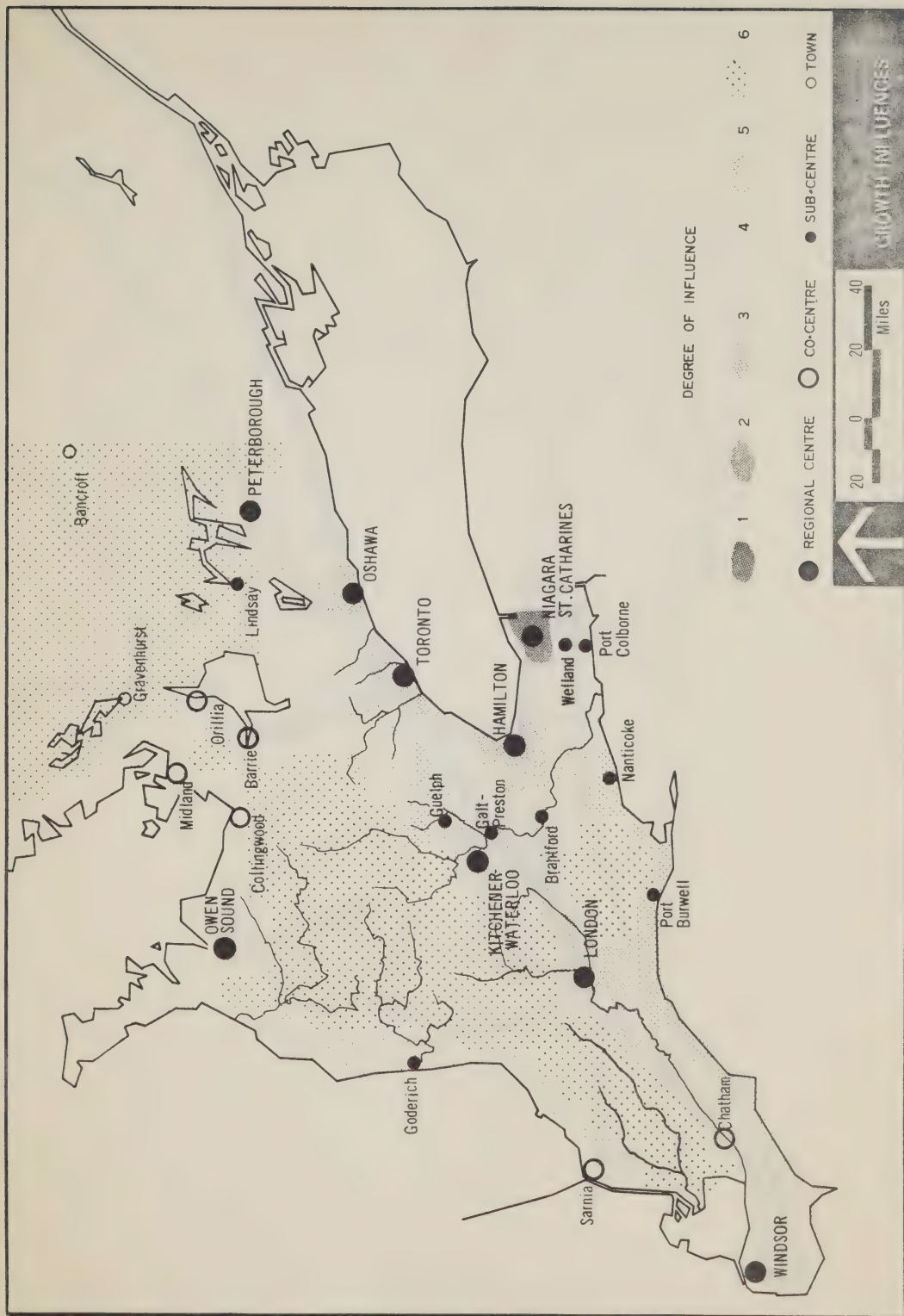
Concept, Regional Development Plan, Vol. II, op. cit., pp. 32-39.

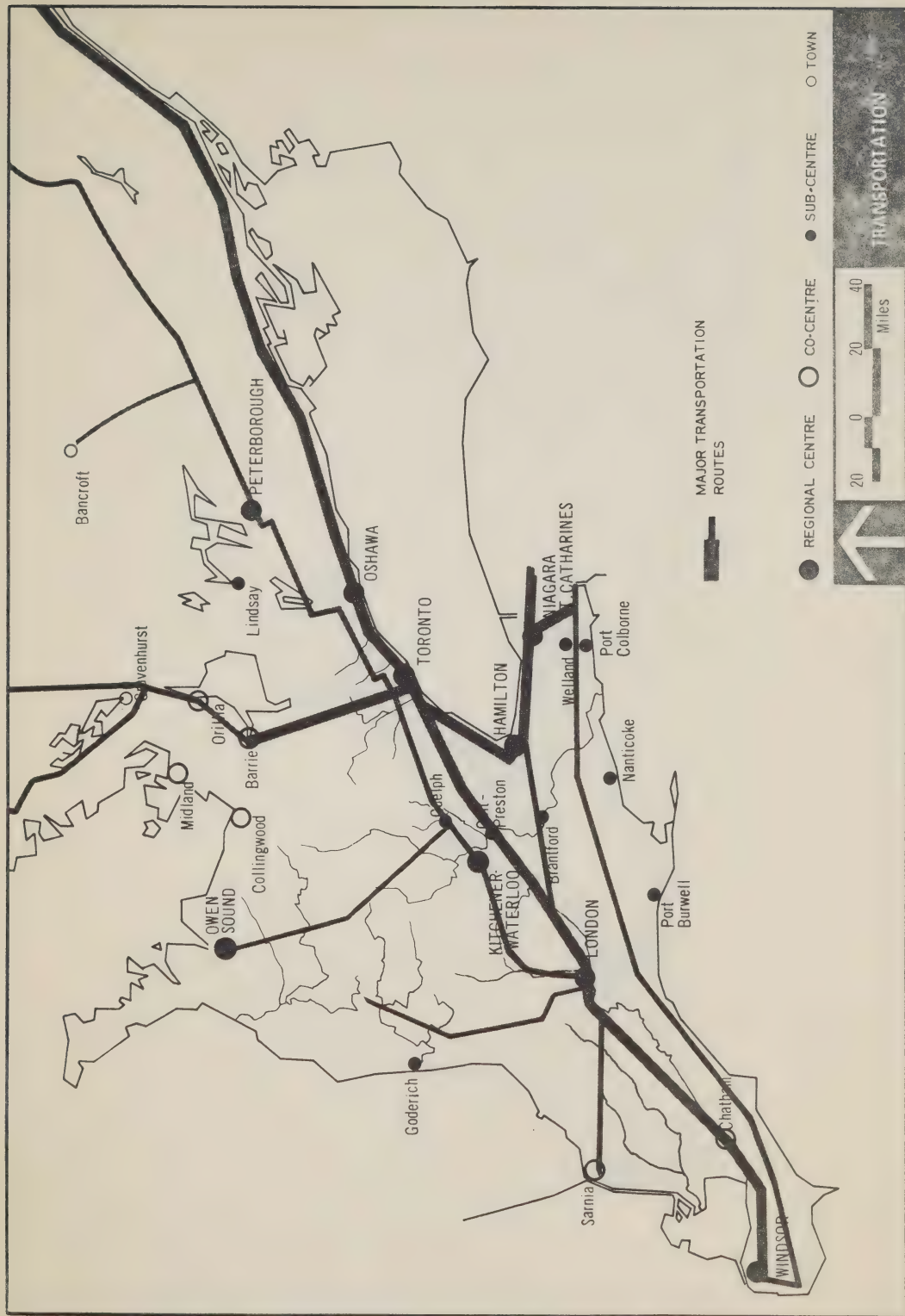
industrial society, with its emphasis on resource conservation and pollution control; on high mobility, telecommunication and information systems that support and integrate extensive urban networks; on the location criteria of non-manufacturing activities; on orientation to leisure; and on the transformation of values away from economic criteria towards "a wider social ethos". The concept of a comprehensive, long range Provincial Plan is itself a post-industrial phenomenon.

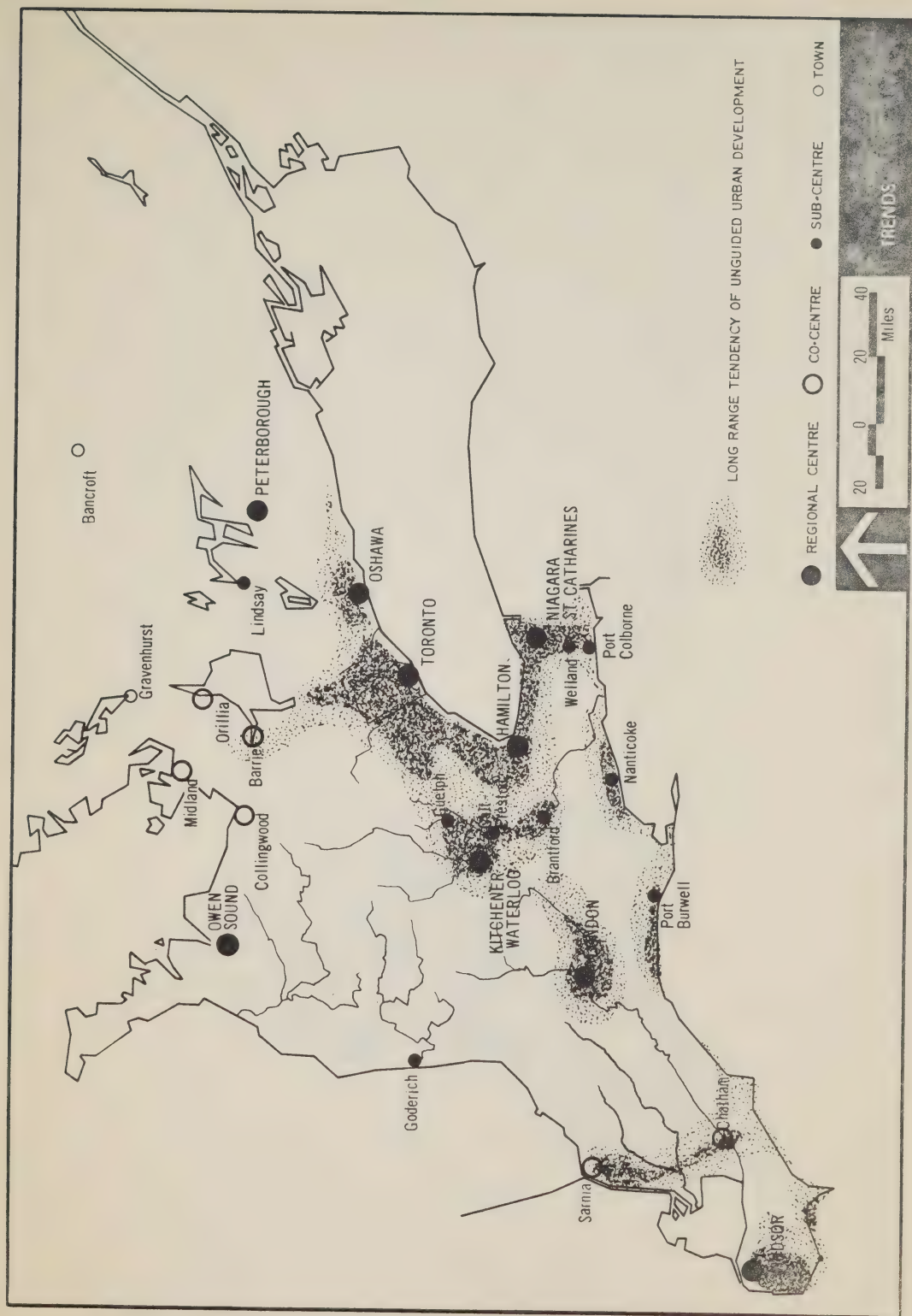
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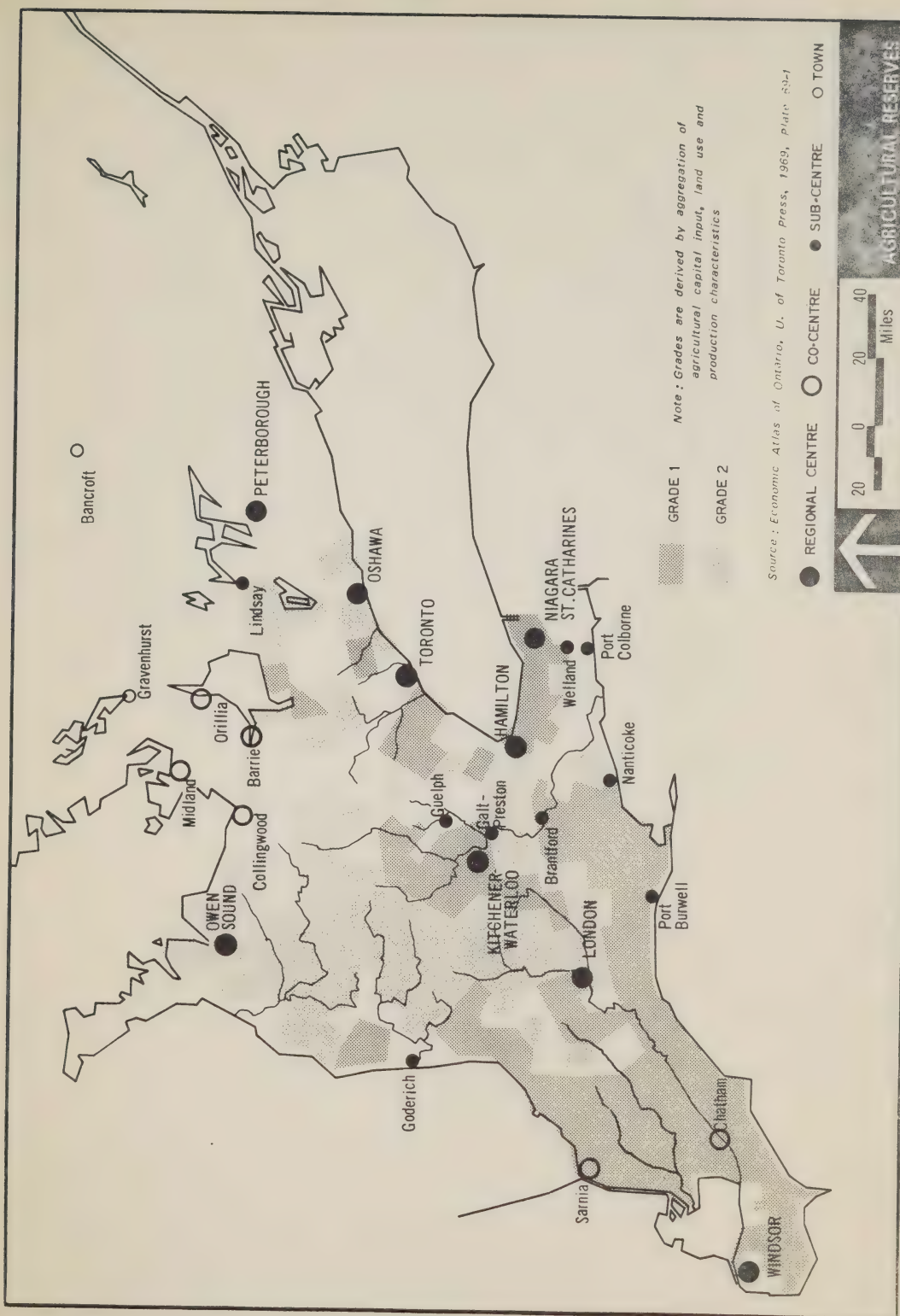
This paper has attempted to provide some clarification of the issues involved in making long range development choices in Southwestern Ontario. Emphasis has been placed on the implications of the heartland position of the area, on the role of fundamental policy goals, on the need to appreciate the social-cultural context within which we plan the future, on the relevance of regional concepts, on the importance of Provincial leadership for setting both environmental and development parameters, and on the urgency of action. On the question of choices it seems that we have to decide what trade-offs we wish to make between urban growth and rustic peace, between concentrated and dispersed economic development, between high incomes and environmental sanity, between excitement and the quiet life. I do not mean to suggest that the choices in the real world are always that sharp--these are the poles of a spectrum, and the question of degree--'how much pollution for how much economic development?' is often critical. In contemplating this, I am reminded of a very distinguished colleague of mine who after a lifetime of writing books and splitting economic hairs--has observed somewhat incredulously, that when it comes to matters of

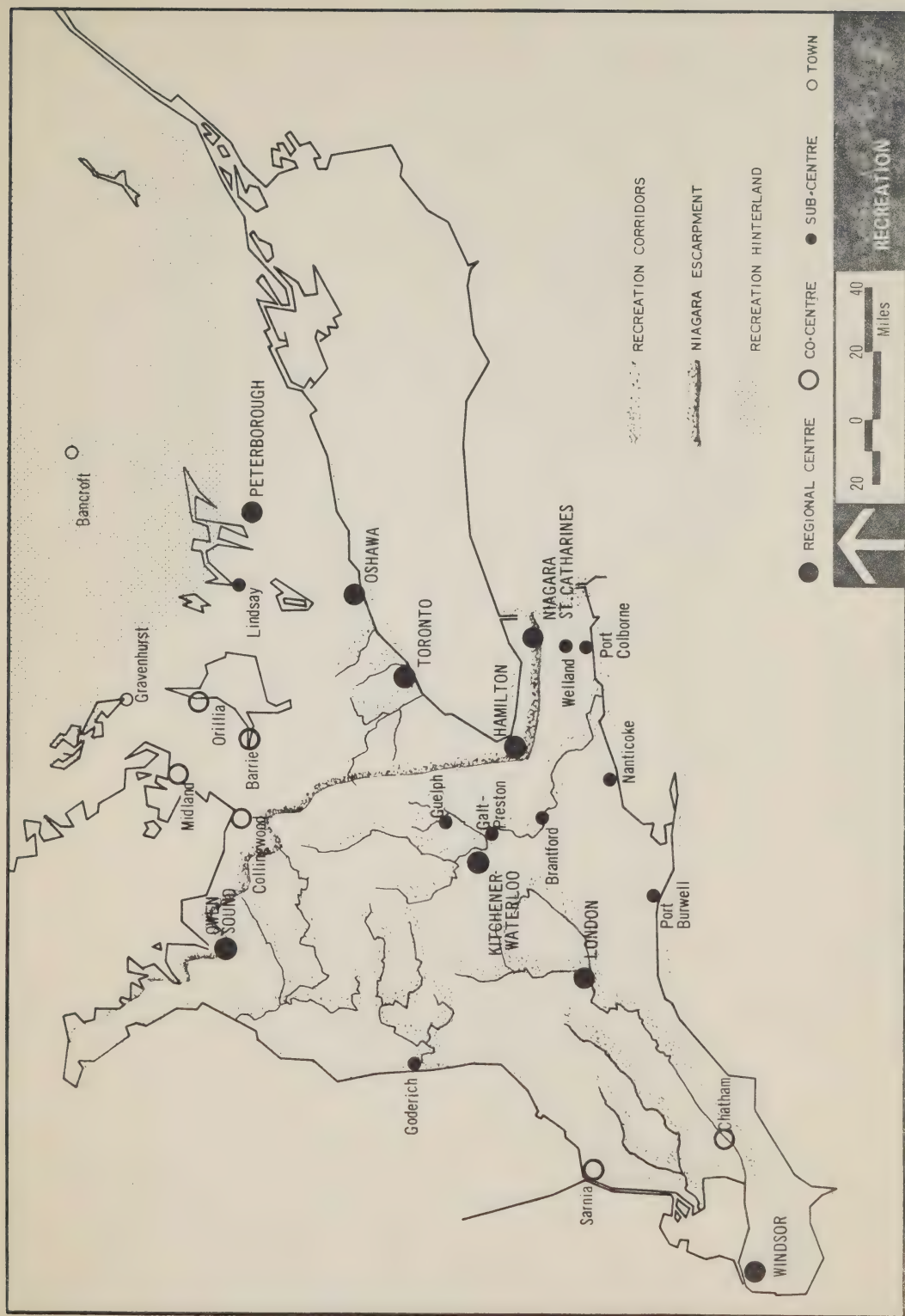
urban and regional development, the fundamental issue is ultimately an issue of aesthetics. Being the kind of learned man that he is, I know he means this in the Platonic sense of "music and gymnastics". The development choices we have to make are philosophic choices.

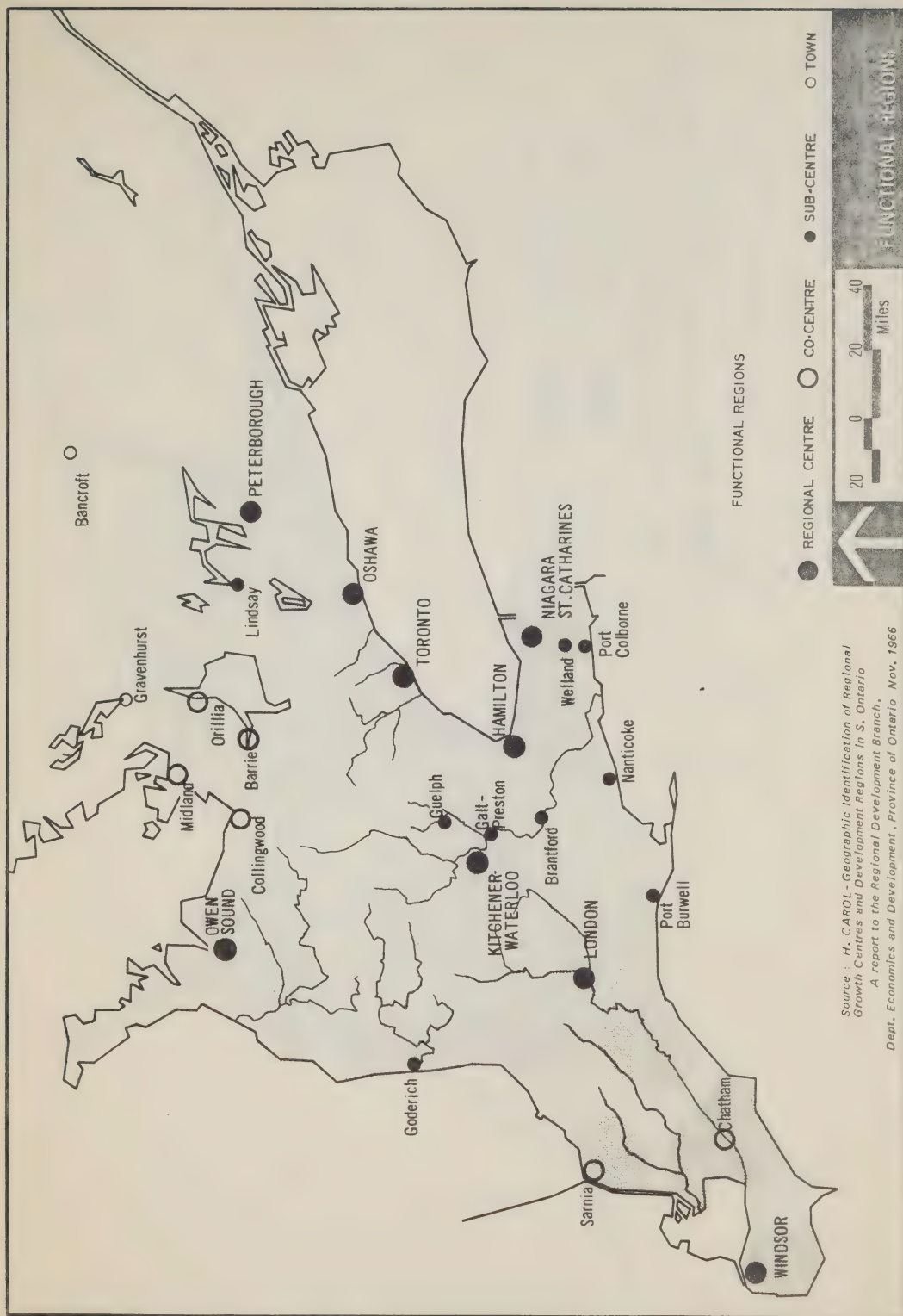




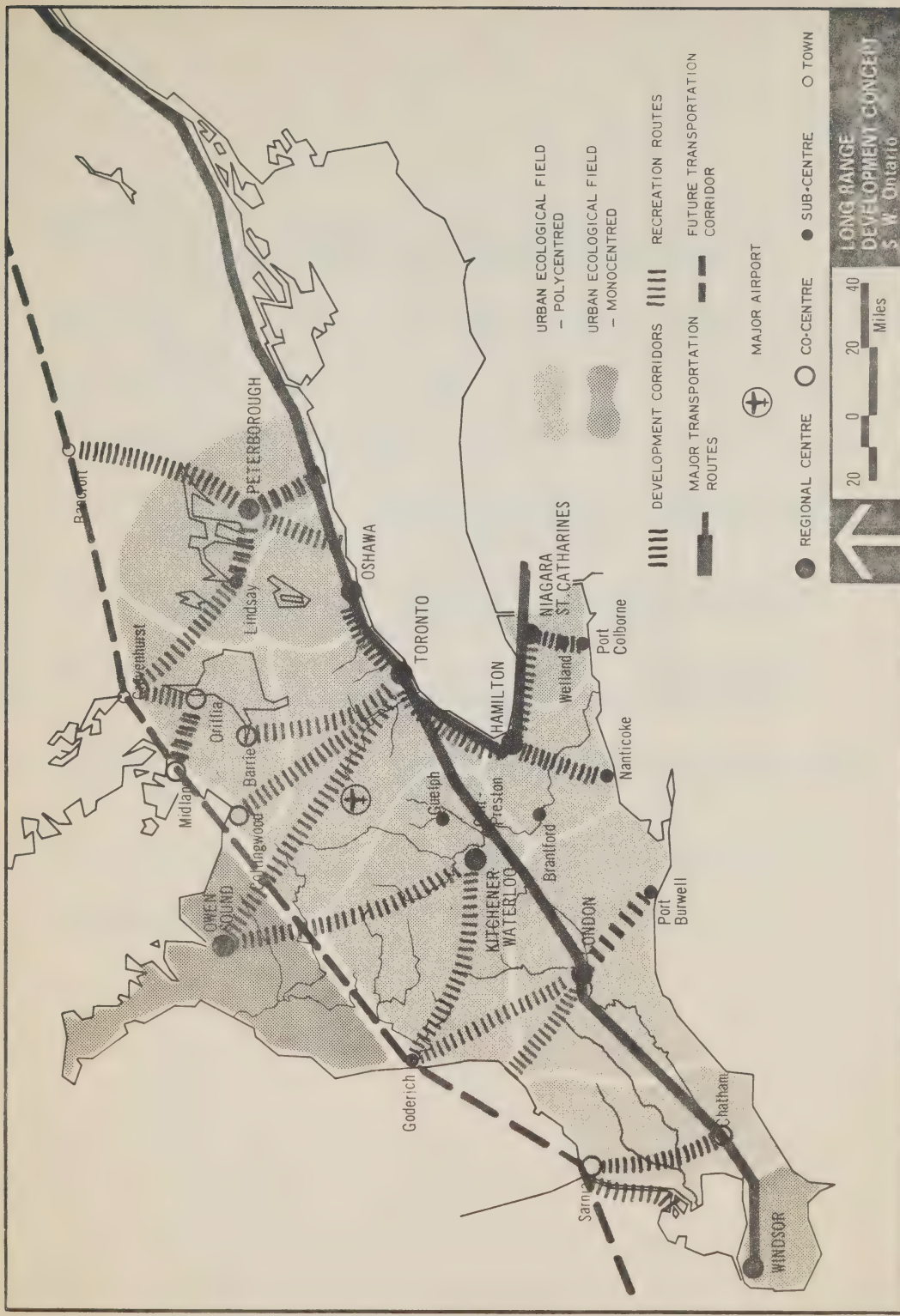








Source : H. CAROL - Geographic Identification of Regional Growth Centres and Development Regions in S. Ontario
 A report to the Regional Development Branch,
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LONG RANGE
DEVELOPMENT CONCEPT
S. W. Ontario

20 0 20 40
Miles

Sources for the conceptual regions, "urban ecological fields", in Ontario, as illustrated on the map - Long Range Development Concept South Western Ontario.

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